JVC

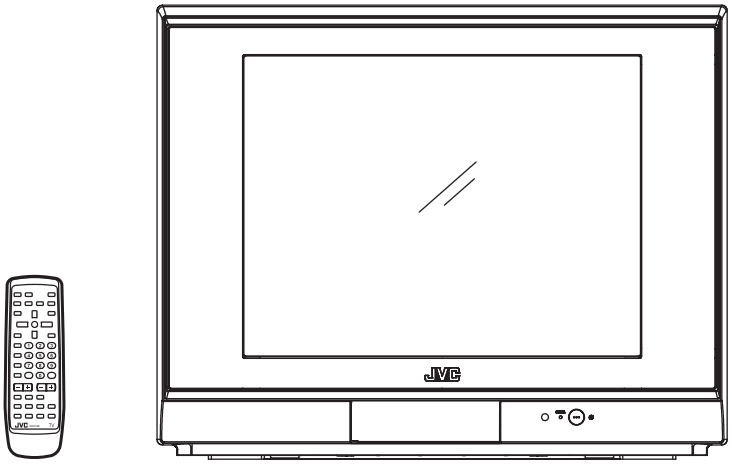
SERVICE MANUAL

FLAT COLOUR TELEVISION

AV-2956BE

BASIC CHASSIS
CW3

InteriArt



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SPECIFICATION

Items		Contents
Dimensions (W × H × D)		74.4 cm × 60.0 cm × 49.2 cm
Mass		40 kg
TV RF System		B, G, I, D, K, M
Colour System		PAL / SECAM / NTSC 3.58 / NTSC 4.43
Stereo System		A2 (B/G) / NICAM (B/G, I, D/K)
Teletext System		FLOF (Fastext) WST (World Standard System)
Receiving Frequency	VHF Low	46.25MHz - 140.25MHz (AS0 - S6)
	VHF High	147.25MHz - 423.25MHz (S7 - S36)
	UHF	431.25MHz - 863.25MHz (S37 - C57)
	CATV	Mid (X - Z+2, S1 - S10) / Super (S11 - S20) / Hyper (S21 - S41) bands
Intermediate Frequency	VIF	38.0MHz (B, G, I, D, K, M)
	SIF	32.26 MHz (5.74 MHz: B), 32.15MHz (5.85 MHz: G), 31.45 MHz (6.55 MHz: I) 31.75 MHz (6.5 MHz: D), 32.15MHz (5.85 MHz: K), 33.5MHz (4.5MHz : M)
Colour Sub Carrier	PAL	4.43 MHz
	SECAM	4.40625 MHz / 4.25 MHz
	NTSC	3.58 MHz / 4.43 MHz
Power Input		AC220 V - AC240 V, 50 Hz/60 Hz
Power Consumption		147W (Max) / 98W (Avg)
Picture Tube		29-inch, aspect ratio 4 : 3, flat square type, tinted
High Voltage		30.5 kV ±1.5kV
Speaker		5 cm × 12 cm, oval type × 2
Audio Power Output		10 W + 10 W (Rated power output)
Aerial Input		75 Ω unbalanced, coaxial
Video / Audio Input-1/2/3	Component Video [VIDEO-2]	RCA pin jack × 3 Y:1V(p-p), positive (negative sync), 75Ω Cb/Cr:0.7V(p-p), 75Ω
	S-Video [VIDEO-1]	Mini-DIN 4 pin × 1 Y: 1V(p-p), positive (negative sync provided), 75Ω C: 0.286V(p-p) (Burst signal), 75Ω
	Video	1V(p-p), negative sync, 75Ω, RCA pin jack × 3
	Audio	500mV(rms) (-4dBs), high impedance, RCA pin jack × 6
Video / Audio Output	Video	1V(p-p), 75Ω, RCA pin jack × 1
	Audio	500mV(rms)(-4dBs), Low impedance, RCA pin jack × 2
Headphone jack		3.5 mm stereo mini jack × 1
Remote Control Unit		RM-C1286 (UM-3/AA/R6 dry cell battery × 2)

Design and specifications subject to change without notice.

SECTION 1
PRECAUTION

1.1 SAFETY PRECAUTIONS

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.

(5) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See B1 VOLTAGE).

(6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

(7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

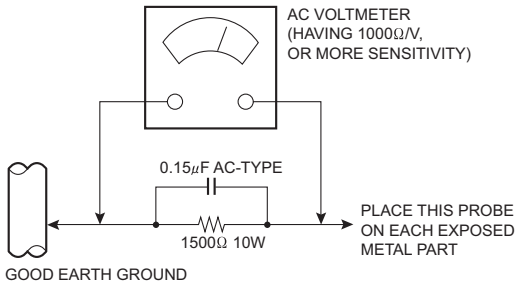
(8) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(9) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000Ω per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 FEATURES

DVD PICTURE MODE

This function can enhance the picture quality of DVD. The screen can be made sharp or soft by this setting.

AUTO SIGNAL DETECT

When input DVD signal to VIDEO-2, detect the input signal and change the input mode to VIDEO-2 automatically.

CINEMA SURROUND

This function can enjoy an enhanced sound for wider audience.

PICTURE MODE

This function can adjust the picture settings automatically. There are BRIGHT, STANDARD and SOFT in the PICTURE MODE.

RETURN +

This function can set a channel frequently view to the Return Channel and you can view that channel at any time with one-touch.

ECO MODE

This function can adjust TV screen contrast according to the brightness of your room.

2.2 TECHNINAL INFORMATION

2.2.1 MAIN MI-COM (CPU) PIN FUNCTION

Pin No.	Pin name	I/O	Function	Pin No.	Pin name	I/O	Function
1	VssP2	-	GND	65	SVM	O	Not used
2	VssC4	-	GND	66	FbiSo	I	Flyback input/sandcastle output
3	V1.8C4	I	1.8V (Digital)	67	Hout	O	Horizontal output
4	V3.3A3	I	3.3V	68	VssComb	-	GND
5	VrefP_Sdac	I	3.3V (Positive)	69	V5Comb	I	5V
6	VrefN_Sdac	-	GND	70	Vin/R2/Pr	I	PIP R input
7	VrefP_Sdac	I	3.3V (Negative)	71	Uin/B2/Pb	I	PIP B input
8	VrefN_Sdac	-	GND	72	Yin/G2/Y	I	PIP G input
9	VrefP_Sdac	I	3.3V (Positive)	73	Ysync	I	Not used
10	XtalIn	I	24.576MHz for system clock	74	Yout	O	Not used
11	XtalOut	O	24.576MHz for system clock	75	Uout/INSSW2	I	YUV insertion input
12	VssA1	-	GND	76	NC	O	Not used
13	NECK	I	V-guard input/ I/O switch	77	INSSW3	I	YUV insertion input
14	CONT	I	1.8V regulator control	78	R3/Pr	I	Component PR input (Video-2)
15	V5P1	I	+5V	79	G3/Y	I	Component Y input (Video-2)
16	Ph2	-	Phase-2 filter	80	B3/Pb	I	Component PB input (Video-2)
17	Ph1	-	Phase-1 filter	81	Gnd3	-	GND
18	Gnd1	-	GND	82	V5P3	I	5V
19	SecPll	-	SECAM PLL decoupling	83	BCL	I	Beam current limiter input
20	Dec8G	-	Bandgap decoupling	84	BLKIN	I	Black current input
21	EW	O	East-West drive output	85	Rout	O	R output
22	VDRB-	O	Vertical drive B output	86	Gout	O	G output
23	VDRA+	O	Vertical drive A output	87	Bout	O	B output
24	Vif1	I	Video IF input 1	88	V3.3A1	I	3.3V
25	Vif2	I	Video IF input 2	89	RefAdN	-	GND
26	Vsc	-	Vertical sawtooth capacitor	90	V3.3RefAdP	I	3.3V (Positive)
27	Iref	I	Reference current input	91	RefAd	I	3.3/2V
28	GndIF	-	GND	92	GndA	-	GND
29	Sif1	I	Sound IF input 1	93	V1.8A	I	1.8V
30	Sif2	I	Sound IF input 2	94	V3.3A2	I	3.3V
31	AGC	O	Tuner AGC output	95	VssADC	-	GND
32	EHT	I	EHT/overvoltage protection input	96	V1.8ADC	I	1.8V
33	Ssif/RefIn/Avl/ RefOut	O	Automatic Volume Levelling/ sound IF input / subcarrier reference output / external reference signal input for I signalmixer for DVB operation	97	REMOTE	I	Remote control
34	L3	I	Audio-L3 input (left signal)	98	PW_LED	I	POWER LED control
35	R3	I	Audio-R3 input (right signal)	99	PW_LED	I	POWER LED control
36	L-OUT	O	Audio L output	100	V1.8C2	I	1.8V
37	R-OUT	O	Audio R output	101	VssC2	-	GND
38	DecsDem	-	Decoupling sound demodulator	102	TIMER	-	Not used
39	QssO/AmO/ AudeEm	O	QSS intercarrier output / AM output / deemphasis / (front-end audio out)	103	TIMER	-	Not used
40	Gnd2	-	GND	104	VER_PROTECT	O	X-ray protect
41	PllIf	-	IF-PLL loop filter	105	S_REDUCE	O	Sound control
42	SifAgc	-	AGC sound IF	106	P00/I2SDI1	O	Not used
43	IfVo/FmRo/DvbO	O	Not used	107	POWER	O	SUB POWER control
44	NC	O	Not used	108	SCL1	I	I2C bus clock
45	V8AudioSwitches	I	8V	109	SDA1	I/O	I2C bus data
46	AgcSsif	-	AGC capacitor second sound IF	110	V3.3P	I	3.3V
47	V5P2	I	5V	111	ROTATION	O	Rotation
48	V-OUT	O	Video output	112	3.58/OTHER	O	NTSC 3.58 detection
49	L1	I	Audio-L1 input	113	A_MUTE	O	Audio muting
50	R1	I	Audio-R1 input	114	4.5/OTHER	O	NTSC 4.43 detection
51	V3	I	Video V3 input	115	PROT	I	Protect
52	C4	I	Not used	116	ECO_IN	I	ECO sensor level detection
53	Audio2InL	I	Not used	117	V1.8C1	I	1.8V (Digital)
54	Audio2InR	I	Not used	118	DecV1V8	I	1.8V
55	V2/Y	I	Video V2 input	119	KEY_IN	I	Key scan data
56	L2	I	Audio L2 input (Left signal)	120	VDO-DET	I	Video DET input
57	R2	I	Audio R2 input (right signal)	121	VSSC1+P1	-	Digital GND
58	Y3/Cvbs	I	S-Video Y1 input	122	S_V_DET	I	S-Video DET input
59	C1	I	S-Video C1 input	123	P25/PWM4	O	GTVA_reset
60	AudioLsL	O	Audio L output for audio power amplifier	124	V1.8C3	I	1.8V (Digital)
61	AudioLsR	O	Audio R output for audio power amplifier	125	VssC3	-	GND
62	HP-L	O	Not used	126	P12/Int2	I	External interrupt
63	HP-R	O	Not used	127	SDA0	I/O	I2C bus data (for memory)
64	CVBSO/PIP	O	CVBS / PIP output	128	SCL0	I	I2C bus clock (for memory)

SECTION 3
DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

3.1.1 REMOVING THE REAR COVER

- Unplug the power cord.
  (1) Remove the 9 screws **[A]**, and 2 screws **[B]**.
  (2) Withdraw the REAR COVER toward you.

CAUTION:

When reinstalling the rear cover, carefully push it inward after inserting the MAIN PWB into the REAR COVER groove.

3.1.2 REMOVING THE MAIN PW BOARD

- Remove the REAR COVER.
  (1) Slightly raise the both sides of the MAIN PWB by hand.
  (2) Withdraw the MAIN PWB backward.
  (If necessary, take off the wire clamp and connectors, etc.)

3.1.3 REMOVING THE SPEAKER

- Remove the REAR COVER.
  (1) Remove the 2 screws **[C]**.
  (2) Follow the same steps when removing the other hand SPEAKER.

3.1.4 CHECKING THE MAIN PW BOARD

- To check the back side of the MAIN PWB.
  (1) Pull out the MAIN PWB. (Refer to REMOVING THE MAIN PW BOARD).
  (2) Erect the MAIN PWB vertically so that you can easily check its back side.

CAUTIONS:

- Before turning on power, make sure that the CRT earth wire and other connectors are properly connected.
- When repairing, connect the DEG. COIL to the DEG. connector on the MAIN PWB.

3.1.5 WIRE CLAMPING AND CABLE TYING

(1) Be sure to clamp the wire.
(2) Never remove the cable tie used for tying the wires together.
Should it be inadvertently removed, be sure to tie the wires with a new cable tie.

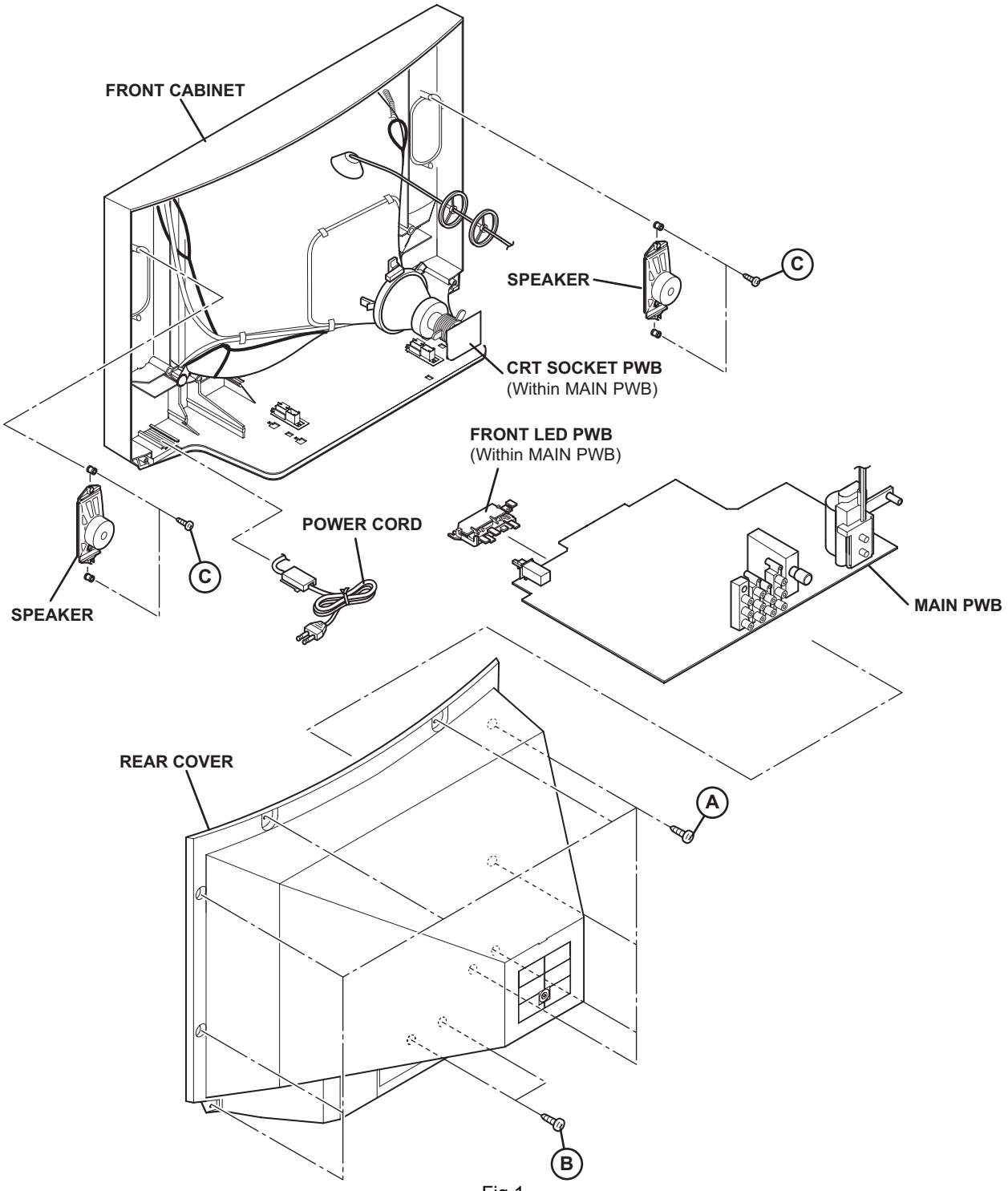

FRONT CABINET
SPEAKER
C
CRT SOCKET PWB
(Within MAIN PWB)
FRONT LED PWB
(Within MAIN PWB)
POWER CORD
C
SPEAKER
MAIN PWB
REAR COVER
A
B

Fig.1

3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.

Memory IC: IC702 on MAIN PWB

The memory IC memorizes data for correctly operating the video and deflection circuits. When replacing the memory IC, be sure to use the same type IC written with the initial values of data. In other words, use the specific IC listed in "PRINTED WIRING BOARD PARTS LIST". For its mounting location, refer to "ADJUSTMENT LOCATIONS".

3.2.1 MEMORY IC REPLACEMENT PROCEDURE

1. Power off

Switch off the power and disconnect the power plug from the AC outlet.

2. Replace the memory IC

Be sure to use the memory IC written with the initial setting values.

3. Power on

Connect the power plug to the AC outlet and switch on the power.

4. System constant check and setting

* It must not adjust without signal.

(1) Press the **[DISPLAY]** key and the **[PICTURE MODE]** key of the REMOTE CONTROL UNIT simultaneously.

(2) The SERVICE MODE screen of Fig. 1 will be displayed.

(3) While the SERVICE MODE is displayed, press the **[DISPLAY]** key and the **[PICTURE MODE]** key simultaneously, and the SYSTEM CONSTANT SET screen of Fig. 2 will be displayed.

(4) Check the setting values of the SYSTEM CONSTANT SET. If the value is different, select the setting item with the **[MENU ▲/▼]** key, and set the correct value with the **[MENU ◀ / ▶]** key.

(5) Press the **[OK]** key to memorize the setting value.

(6) Press the **[DISPLAY]** key twice, and return to the normal screen.

5. Receiving channel setting

Refer to the OPERATING INSTRUCTIONS and set the receive channels (Channels Preset) as described.

6. User settings

Check the user setting items according to the given in page later.

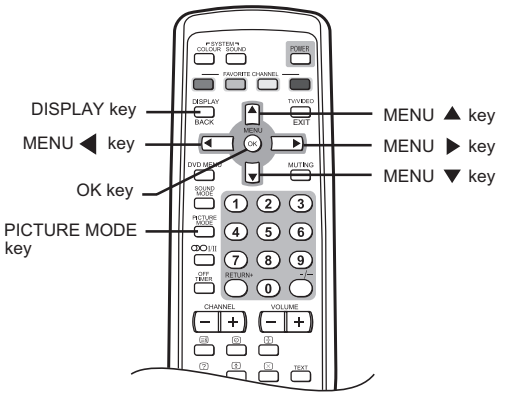
Where these do not agree, refer to the OPERATING INSTRUCTIONS and set the items as described.

7. SERVICE MODE setting

Verify what to set in the SERVICE MODE, and set whatever is necessary (Fig.1).

Refer to the SERVICE ADJUSTMENT for setting.

KEY ASSIGNMENT OF REMOTE CONTROL UNIT



SERVICE MENU

SERVICE MENU

1. IF 2. V/C
3. AUDIO 4. DEF
5. VSM W/B 6. S TATUS
7. PLUG & PLAY (ON)

1-7 : SELECT DISPLAY : EXIT

******* **** ***** *****
**** **** *** ***

Fig.1

SYSTEM CONSTANT-1

SYSTEM CONSTANT SET 1

SYSTEM	: MULTI
COMB	:YES
TILT	:YES
TEXT	:PAT
LANGUAGE	:ERU

▼ ▲ : SEL ◀ ▶ : OPE DISP : EXIT

SYSTEM CONSTANT-2

SYSTEM CONSTANT SET 2

SOUND	:STEREO
BILINGUAL	:NO
BLUE BACK MUTE	:NO
COLOUR AUTO	:NO
ECO SENSOR	:SIMPLE
INTER CARRIER	:NO

▼ ▲ : SEL ◀ ▶ : OPE DISP : EXIT

SYSTEM CONSTANT-3

SYSTEM CONSTANT SET 3

SURROUND	:YES
PICTURE BOOSTER	:NO
COMPONENT	:YES
PIP	:NO
S INPUT	:YES
MAXX BASS	:NO

▼ ▲ : SEL ◀ ▶ : OPE DISP : EXIT

Fig.2

3.2.2 SYSTEM CONSTANT SETTING

Setting item	Setting value
SYSTEM	MULTI
COMB	YES
TILT	YES
TEXT	PAT
LANGUAGE	E/R/U
SOUND	STEREO
BILINGUAL	NO
BLUE BACK MUTE	NO
COLOUR AUTO	NO
ECO SENSOR	SIMPLE
INTER CARRIER	NO
SURROUND	YES
PICTURE BOOSTER	NO
COMPONENT	YES
PIP	NO
S INPUT	YES
MAXX BASS	NO

3.2.3 SETTINGS OF FACTORY SHIPMENT

3.2.3.1 BUTTON OPERATION

Setting item	Setting position
POWER	Off
CHANNEL	PR 1
VOLUME	15

3.2.3.2 REMOTE CONTROL DIRECT OPERATION

Setting item	Setting position
CHANNEL	PR1
VOLUME	15
PICTURE MODE	BRIGHT
DISPLAY	Indicated
TV/VIDEO	TV
CINEMA SURROUND	OFF

3.2.3.3 REMOTE CONTROL MENU OPERATION

(1) PICTURE SETTING

Setting item	Setting position
PICTURE MODE	BRIGHT
CONTRAST / BRIGHT / SHARP / COLOUR / TINT	Centre
WHITE BALANCE	COOL
VNR	AUTO

(2) SOUND SETTING

Setting item	Setting position
STEREO I/II	STEREO SOUND
AI VOLUME	OFF
SOUND MODE	MUSIC
BALANCE	Centre
CINEMA SURROUND	OFF

(3) FEATURE SETTING

Setting item	Setting position
DVD MENU	
AUTO SIGNAL DETECT	ON
DVD PICTURE MODE	OFF
DVD THEATER STATUS	OFF
DVD SOUND MODE	THEATER
ON TIMER	OFF
OFF TIMER	OFF
CHILD LOCK	OFF
COMPRESS (16:9)	OFF
ECO MODE	OFF

(4) INSTALL SETTING

Setting item	Setting position
AUTO PROGRAM	TV channel automatically set
EDIT/MANUAL	PRESET CH only
COLOUR SYSTEM	PAL
LANGUAGE	ENGLISH
TEXT LANGUAGE	GROUP-3
VIDEO-2 SETTING	COMPONENT
BLUE BACK	ON
BEEP	ON

3.2.4 SERVICE MODE SETTING ITEMS

Setting item	Setting value
1. IF	1. VCO 2. DELAY POINT
2. V / C	1.SCREEN (READ DATA) 2.CUTOFF / CUT OFF THEATER (B/G) 3.WDR (R/G/B) 4.BRIGHT (TV/VDO 1/2/3) 5.CONT. (TV/VDO 1/2/3) 6.COLOUR (TV/VDO 1/2/3) 7.TINT (TV/VDO 1/2/3 /THEATER) 8.SHARP (TV/VDO 1/2/3) 9.Y DELAY (TV/VDO 1/2/3/S-VDO) 10.TINT DVD (TV/VDO/THEATER) 11.AMP T.SHARP (TV/VDO) 12.TWIN CONT (TV/VDO)
3. AUDIO **[Do not adjust]**	1. DCXO ADJ 2. NICAM lower ERRLIM 3. NICAM upper ERRLIM 4. A2 ID THR 5. MENU EQUALIZER
4. DEF	1. V-SHIFT 2. V-SLOPE 3. V-SIZE 4. H-CENT 5. H-SIZE 6. TRAPEZ 7. EW-PIN 8. COR-UP 9. COR-LO 10. ANGLE 11. BOW 12. V-S.CR 13. V-LIN 14. V-ZOOM
5. VSM PRESET	1. BRIGHT 2. CONT 3. COLOUR 4. SHARP 5. HUE
	1. R DRIVE 2. G DRIVE 3. B DRIVE
6. STATUS **[Dispaly only]**	---
7. PLUG & PLAY(ON) **[Dispaly only]**	---

3.3 REPLACEMENT OF CHIP COMPONENT

3.3.1 CAUTIONS

(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

3.3.2 SOLDERING IRON

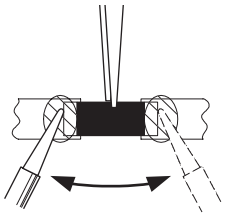
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

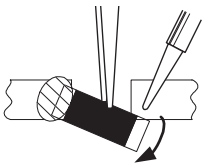
1. How to remove Chip parts

[Resistors, capacitors, etc.]

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



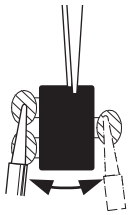
(2) Shift with the tweezers and remove the chip part.



[Transistors, diodes, variable resistors, etc.]

(1) Apply extra solder to each lead.

(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

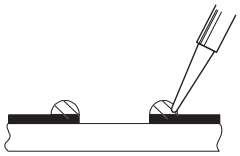


NOTE :
After removing the part, remove remaining solder from the pattern.

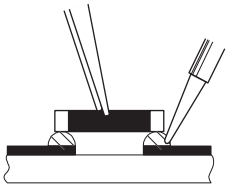
2. How to install Chip parts

[Resistors, capacitors, etc.]

(1) Apply solder to the pattern as indicated in the figure.

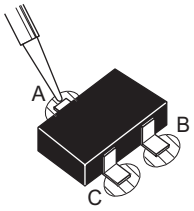


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

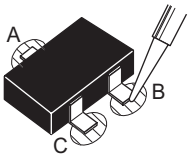


[Transistors, diodes, variable resistors, etc.]

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



SECTION 4
ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

(1) **There are 2 ways of adjusting this TV : One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.**
(2) **The adjustment using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.**
(3) Make sure that connection is correctly made AC to AC power source.
(4) Turn on the power of the TV and measuring instruments for warming up for at least 30 minutes before starting adjustments.
(5) If the receive or input signal is not specified, use the most appropriate signal for adjustment.
(6) Never touch the parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.

4.2 PRESET SETTING BEFORE ADJUSTMENT

Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT.

Item	Preset value
PICTURE MODE(VSM)	BRIGHT
VNR	OFF
ECO MODE	OFF
BALANCE	Centre
BASS / TREBLE / BALANCE	Centre
CINEMA SURROUND	OFF

4.3 MEASURING INSTRUMENT AND FIXTURES

(1) DC voltmeter (or digital voltmeter)
(2) Oscilloscope
(3) HV voltmeter
(4) Signal generator
(Pattern generator : PAL/NTSC)
(5) Remote control unit

4.4 ADJUSTMENT ITEMS

■ **CHECK ITEMS**
- B1 VOLTAGE check
- HIGH VOLTAGE check
- IF VCO check

■ **TUNER / IF CIRCUIT**
- DELAY POINT (AGC) adjustment

■ **FOCUS**
- FOCUS adjustment

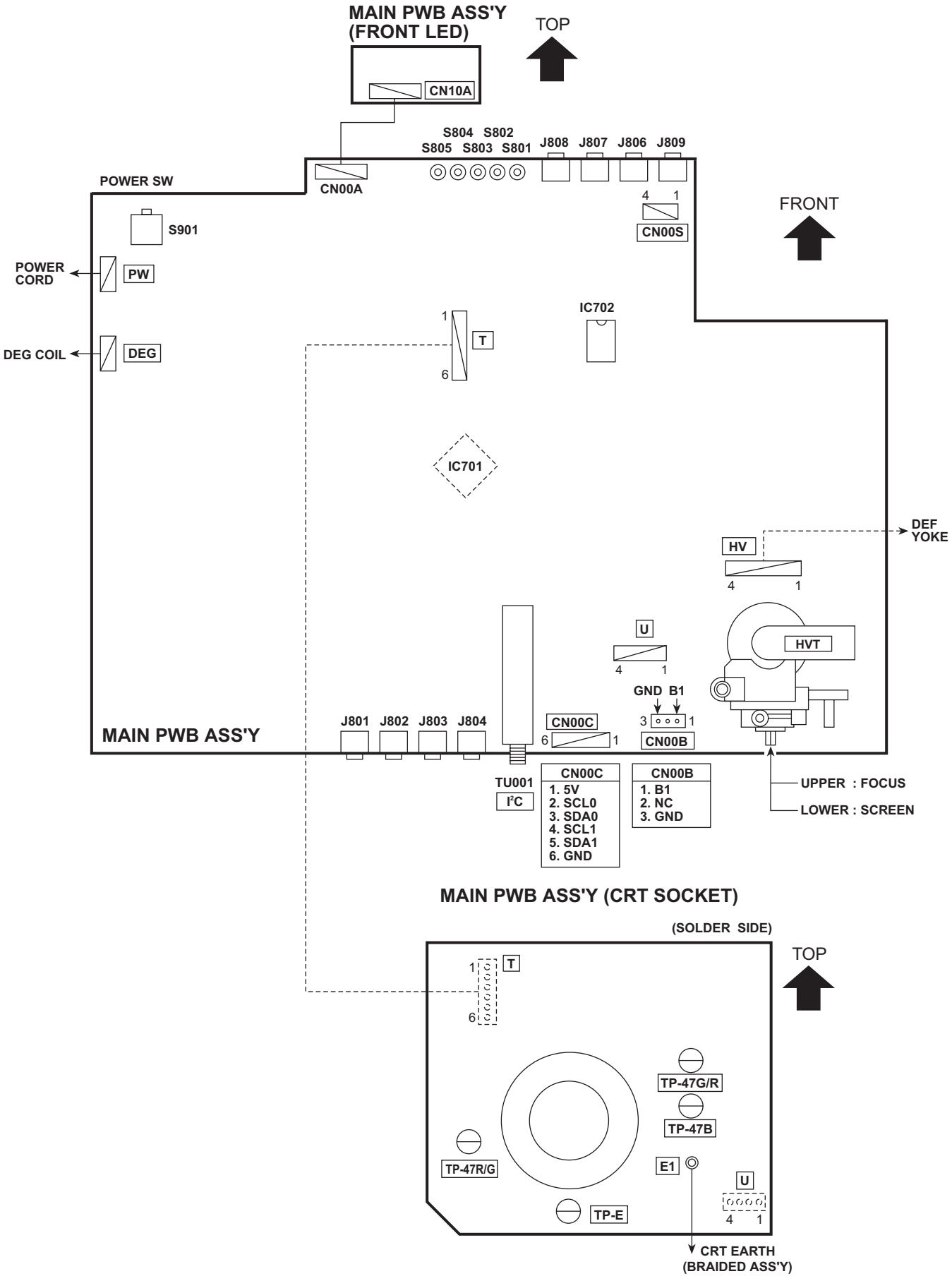
■ **DEFLECTION CIRCUIT**
- V.SLOPE adjustment
- V.POSITION adjustment
- V.SIZE adjustment
- H.POSITION adjustment
- H.SIZE adjustment
- SIDE PIN adjustment
- TRAPEZIUM adjustment
- V. LINEARITY adjustment
- CORNER adjustment
- H. PARALLEL adjustment
- H.BOW adjustment

■ **VIDEO CIRCUIT**
- WHITE BALANCE adjustment
- SUB BRIGHT adjustment
- SUB CONTRAST adjustment
- SUB COLOUR adjustment
- SUB TINT adjustment

■ **VSM PRESET SETTING**
- VSM PRESET

■ **PURITY AND CONVERGENCE**
- PURITY adjustment
- STATIC CONVERGENCE adjustment
- DYNAMIC CONVERGENCE adjustment

4.5 ADJUSTMENT LOCATION



4.6 BASIC OPERATION OF SERVICE MODE

4.6.1 TOOL OF SERVICE MODE OPERATION

Operate the SERVICE MODE with the REMOTE CONTROL UNIT.

4.6.2 SERVICE MODE ITEMS

With the SERVICE MODE, various adjustments can be made, and they are broadly classified in the following items of settings.

1.IF	This mode adjusts the setting values of the IF circuit.
2. V/C	This mode adjusts the setting values of the VIDEO circuit.
3.AUDIO	This mode adjusts the setting values of the multiplicity AUDIO circuit. **[Do not adjust]**
4. DEF	This mode adjusts the setting values of the DEFLECTION circuit for each aspect mode given below.
5.VSM PRESET	This mode adjusts the initial setting values of BRIGHT, STANDARD and SOFT. (VSM : Video Status Memory)
6.STATUS	It is no requirement to adjustment. **[Do not adjust]**
7.PLUG & PLAY (ON)	This mode adjusts the setting values of the PIP circuit. **[Do not adjust]**

4.6.3 BASIC OPERATION IN SERVICE MODE

4.6.3.1 HOW TO ENTER THE SERVICE MODE

(1) Press the **[DISPLAY]** key and the **[PICTURE MODE]** key simultaneously, then enter the SERVICE MODE.
(2) When the main menu is displayed, press any key of the [7] to [9] key to enter the corresponding sub menu mode.

SERVICE MENU

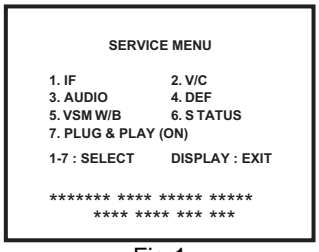
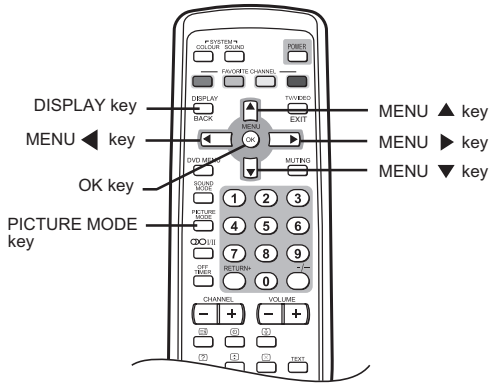


Fig.1

SERVICE MODE SELECT KEY



NOTE:
This illustration is applicable for RM-C1286. The key assignment of this remote control unit is, however, usable for the other type of remote control units.

Fig.2

4.6.3.2 SETTING METHOD

■ **1.IF**

[1. VCO] : It must not adjust without signal

(1) **[1]** key
Select 1.IF.
(2) **[1]** key
Select 1.VCO(CW).
Check the arrow position between the ABOVE REF. and BELOW REF.
(3) **[DISPLAY]** key
Return to the SERVICE MODE main manu screen.

■ **2. V/C, 4. DEF**

(1) **[2]**, **[4]** key
Select one from 2. V/C, 4. DEF.
(2) **[MENU ▲/▼]** key
Select setting items.
(3) **[MENU ◀ / ▶]** key
Set the setting values of the setting items.

■ **5.VSM W/B**

(1) **[5]** key
Select 5.VSM W/B.
(2) **[OK]** key
Select setting items.
(3) **[MENU ▲/▼]** key
Set the setting values of the setting items.

4.6.3.3 MEMORIZE THE ADJUSTMENT DATA

When Mnt is completed, press the **[OK]** key to memorize the adjustment value. If not to do so, the data is not memorized to the memory IC. And if exit the adjustment mode before to memorize the data, the adjustment value which you have changed will be canceled.

4.6.3.4 RELEASE OF SERVICE MODE

After completing the setting, return to the SERVICE MODE, then again press the **[DISPLAY]** key.

4.6.4 SERVICE MODE FLOW CHART

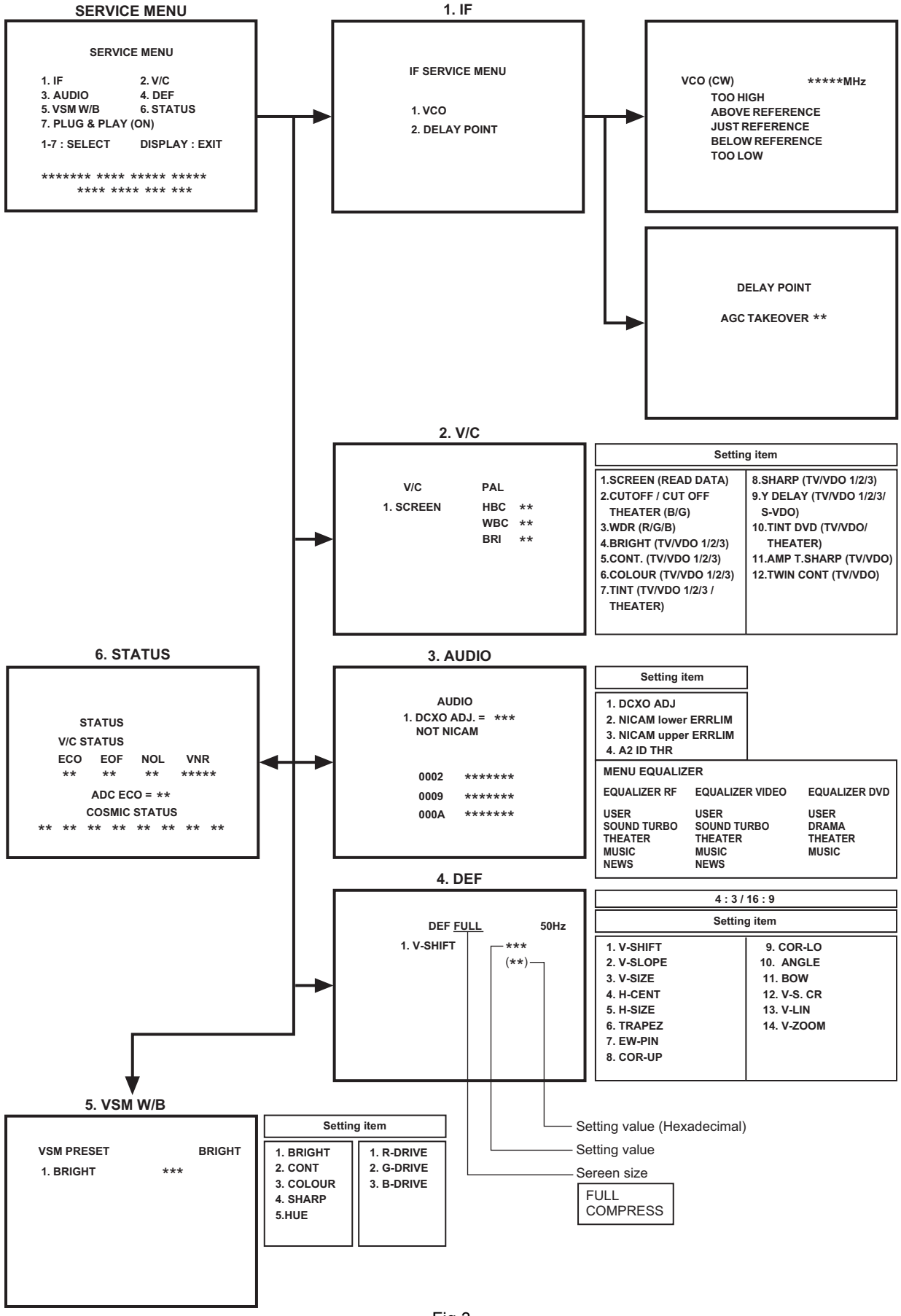


Fig.3

4.7 INITIAL SETTING VALUE OF SERVICE MODE

(1) Adjustment of the SERVICE MODE is made on the basis of the initial setting values:however, the new setting values which set the screen in its optimum condition may differ from the initial setting value.
(2) Do not change the initial setting values of the setting items not listed in "ADJUSTMENT PROCEDURE".
(3) The " --- " means adjustment is not possible.
(4) " 12.TWIN CONT " is displayed only in the models with PIP function.

[2. V/C] * is variable values for adjustment.

Adjustment item		Variable range	Initial setting value						
			PAL	SECAM	NTSC3.58	NTSC4.43	VIDEO 2	COMPONENT (V-2)	
								525i	625i
1. SCREEN	BRI	0 ~ 63	32*	32*	32*	32*	---	32*	32*
2. CUT OFF	B	0 ~ 63(-32 ~ +31)	11*	11*	11*	11*	---	+3*	+3*
	G	0 ~ 63(-32 ~ +31)	7*	7*	7*	7*	---	-5*	-5*
CUT OFF THEATER	B	0 ~ 63(-32 ~ +31)	---	---	---	---	+3	+7	+7
	G	0 ~ 63(-32 ~ +31)	---	---	---	---	+0	+6	+6
3. WDR	R	0 ~ 63(-32 ~ +31)	32*	32*	32*	32*	---	0	0
	G	0 ~ 63(-32 ~ +31)	32	32	32	32	---	0	0
	B	0 ~ 63(-32 ~ +31)	45*	45*	45*	45*	---	0	0
4. BRIGHT	RF	0 ~ 63	39*	39*	39*	39*	---	---	---
	VIDEO-1(COMPOSITE/S)	(-32 ~ +31)	+2	+2	+2	+2	---	---	---
	VIDEO-2(COMPONENT)	(-32 ~ +31)	+1	+1	+1	+1	---	+2	+2
	VIDEO-3(COMPOSITE)	(-32 ~ +31)	+3	+3	+3	+3	---	---	---
5. CONT.	RF	0 ~ 63	32*	32*	32*	32*	---	---	---
	VIDEO	(-32 ~ +31)	+3	+3	+3	+3	---	+2	+2
6. COLOUR	RF	0 ~ 63(-32 ~ +31)	37*	29*	29*	+4	---	---	---
	VIDEO-1(COMPOSITE/S)	(-32 ~ +31)	+5	+3	+5	+4	---	---	---
	VIDEO-2(COMPONENT)	(-32 ~ +31)	+5	+3	+5	+4	---	+5	+2
	VIDEO-3(COMPOSITE)	(-32 ~ +31)	+5	+3	+5	+4	---	---	---
7. TINT	RF	0 ~ 63(-32 ~ +31)	---	---	+27*	+0	---	---	---
	VIDEO	(-32 ~ +31)	---	---	+0	+2	---	---	---
	THEATER	(-32 ~ +31)	---	---	+5	+3	---	---	---
8. SHARP	RF	0 ~ 63	35	35	35	35	---	---	---
	VIDEO	0 ~ 63	40	40	40	40	---	20	20
9. Y DELAY	RF	0 ~ 15	11	9	12	5	---	---	---
	VIDEO	0 ~ 15	9	8	11	10	---	---	---
	S-VIDEO	0 ~ 15	7	7	7	7	---	---	---
10. TINT DVD	RF	0 ~ 63(-32 ~ +31)	37*	-13	+0	+0	---	---	---
	VIDEO	(-32 ~ +31)	-1	-10	+0	+0	---	+8	+1
	THEATER	(-32 ~ +31)	+1	+6	---	---	---	+4	+2
11. AMP T.SHARP	RF VIDEO	0 ~ 63	0	0	0	0	---	0	0
12. TWIN CONT.	TWIN (RF)	---	-15	-15	-15	-15	---	---	---
	TWIN (VIDEO)	---	---	---	---	---	---	---	---

[3. AUDIO] *This submenu is for display only, no adjustment is required.

Function	Item	Setting value
AUDIO	1. DC XO ADJ	12H*
	2. NICAM LOWER ERR LIM	6FH
	3. NICAM UPPER ERR LIM	B0H
	4. A2 ID THR	00H

Function	MODE	Item	100Hz	300Hz	1kHz	3kHz	8kHz
MENU EQUALIZER	RF	SOUND TURBO	+6	+4	-2	+6	+8
		THEATER	+6	+2	-10	+6	+9
		MUSIC	+3	+1	-6	+3	+4
		NEWS	-3	-5	-7	-4	-4
		USER	+0	+0	+0	+0	+0
	VIDEO	SOUND TURBO	+6	+4	-2	+6	+8
		THEATER	+6	+2	-10	+6	+9
		MUSIC	+3	+1	-6	+3	+4
		NEWS	-3	-5	-7	-4	-4
		USER	+0	+0	+0	+0	+0
	DVD	THEATER	+6	+2	-10	+6	+9
		MUSIC	+3	+1	-6	+3	+4
		DRAMA	+0	-2	-7	-3	-2
		USER	+0	+0	+0	+0	+0

[4. DEF]

Adjustment item	Variable range		Initial setting value			
			4:3		COMPRESS (16:9)	
	4:3 50Hz	Others	50Hz	60Hz	50Hz	60Hz
1. V-SHIFT	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
2. V-SLOPE	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
3. V-SIZE	0 ~ 63	-32 ~ +31	+15*	0*	-4*	-2*
4. H-CENT	0 ~ 63	-32 ~ +31	+35*	0*	0*	0*
5. H-SIZE	0 ~ 63	-32 ~ +31	+45*	0*	0*	0*
6. TRAPEZ	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
7. EW-PIN	0 ~ 63	-32 ~ +31	-12*	0*	0*	0*
8. COR-UP	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
9. COR-LO	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
10. ANGLE	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
11. BOW	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
12. V-S.CR	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
13. V-LIN	0 ~ 63	-32 ~ +31	0*	0*	0*	0*
14. V-ZOOM	0 ~ 63	-32 ~ +31	+25 ~ +32	(0)	-23*	+3*

NOTE: The value with an asterisk * is variable for adjustment. The values in parenthesis ( ) are fixed values.
V-ZOOM DATA can adjust follow data range in case measurement line power on is appeared.

[5. VSM W/B]

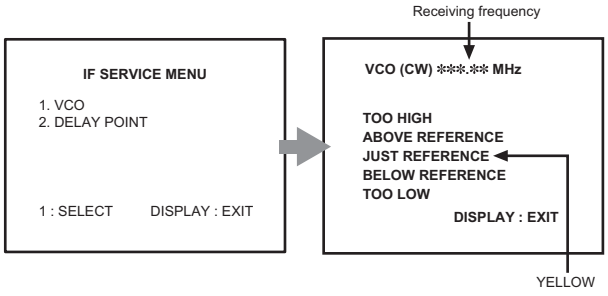
Setting item	Variable range	Setting value			
		BRIGHT	SOFT	STANDARD	THEATER
1. BRIGHT	-16 - 16	0	0	0	-4
2. CONT.	-16 - 16	+15	+5	+10	+5
3. COLOUR	-16 - 16	0	0	-4	-8
4. SHARP	-16 - 16	0	-10	-5	0
5. HUE	-16 - 16	0	0	0	0

Setting item	Variable range	Setting value			
		COOL	WARM	NORMAL	THEATER
1. R DRIVE	-64 - 63	0	+10	0	+8
2. G DRIVE	-64 - 63	0	-4	+2	0
3. B DRIVE	-64 - 63	0	-12	-10	-24

4.8 ADJUSTMENT PROCEDURE

4.8.1 CHECK ITEM

Item	Measuring instrument	Test point	Adjustment part	Description
B1 VOLTAGE	DC voltmeter Remote control unit	CN00B connector 1-pin:TP-B1 3-pin:TP-E **[MAIN PWB]**		(1) Receive any broadcast. (2) Connect a DC voltmeter to 1-pin and 5-pin of CN00B connector. (3) Make sure that the voltage is **DC135V ±2.0V**.
HIGH VOLTAGE	HV voltmeter Remote control unit	CRT anode Chassis GND		(1) Receive any broadcast. (2) Connect the earth clip of HV voltmeter to chassis GND. (3) Connect the probe of HV voltmeter to CRT anode. (4) Make sure that the voltage is **DC30.5kV ±1.5kV**. **NOTE:** • Remove the probe before removing the earth clip.
IF VCO	Remote control unit		[1.IF] 1.VCO	• Under normal conditions, no adjustment is required. • Confirmation adjustment. (1) Select **1.IF** from the SERVICE MODE. (2) Select **<1.VCO>** (3) Receive any broadcast. (4) Check the ←(Arrow) posspition between the ABOVE REF. and BELOW REF.



4.8.2 TUNER / IF CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
DELAY POINT (AGC)	Signal generator Remote control unit		[1. IF] 2. DELAY POINT (AGC TAKE-OVER)	(1) Receive a black and white signal (colour off). (2) Select 1. IF. (3) Select **<2. DELAY POINT>**. (4) Set the setting values of the setting items as shown bellow table. (5) Then adjust the **[MENU - / +]** keys until video noise disappears. (6) Turn to other channels and make sure that there are no irregularities.

Setting Item		Variable range	Initial setting value
DELAY POINT (AGC TAKE-OVER)	NTSC3.58	0 - 127	30
	OTHER		30

4.8.3 FOCUS

Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS	Signal generator		FOCUS VR [In HVT]	(1) Receive the cross hatch signal. (2) While looking at the screen, adjust the **FOCUS VR** to the vertical and horizontal lines will be thinnest and sharpest. (3) Make sure that the picture is in focus even when the screen gets darkened.

4.8.4 DEFLECTION CIRCUIT

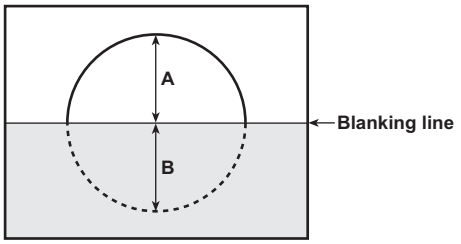
- The setting (adjustment) using the remote control unit is made on the basis of the initial setting values.
- The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- When performing deflection circuit adjustment, adjusts PAL signal (fv: 50 Hz) in 4:3 mode and 16:9 mode respectively, and adjust the NTSC signal (fv: 60 Hz) similarly.

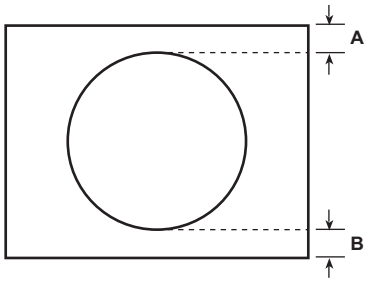
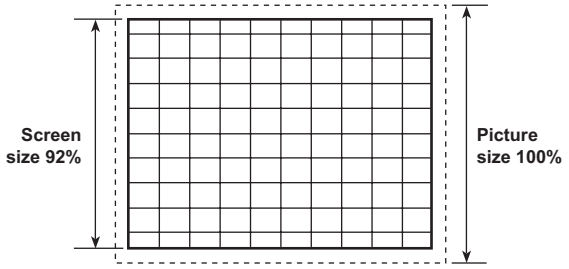
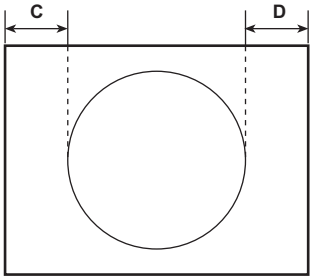
NOTE:

Proceed to the following adjustment after having completed the adjustments of SUB BRIGHT and SUB PICTURE.

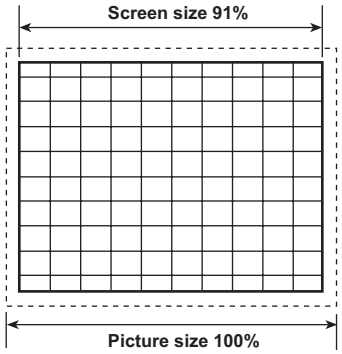
■ **COMPRESS: OFF (4:3)**

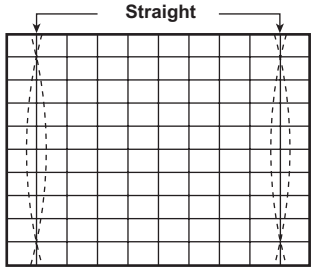
Item	Measuring instrument	Test point	Adjustment part	Description
V. SLOPE	Signal generator Remote control unit		[4. DEF] 2. V-SLOPE	**PAL V. SLOPE** (1) Receive a circle pattern signal of vertical frequency 50Hz (PAL). (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<2. V-SLOPE>**. (4) Set the initial setting value of **<2. V-SLOPE>**. (5) Adjust **<2. V-SLOPE>** to make "**A = B**". (6) Press the **[OK]** key to memorize the set values. **NTSC V. SLOPE** (1) Receive a circle pattern signal of vertical frequency 60Hz (NTSC). (2) Follow the same step 2 to 6 as in PAL V. SLOPE.

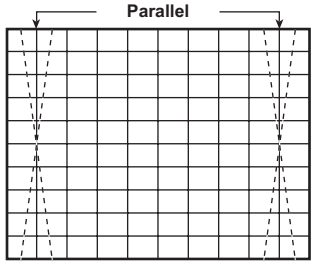


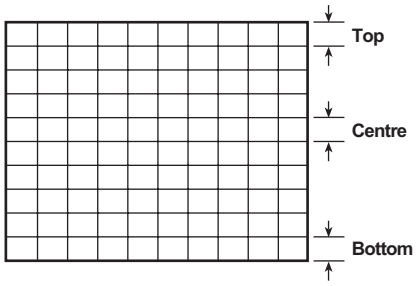
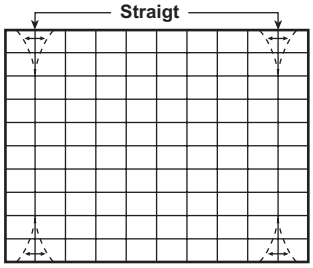
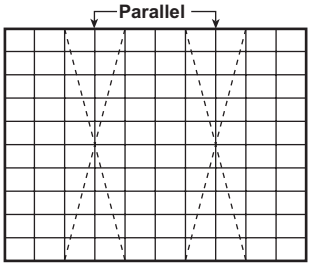
Item	Measuring instrument	Test point	Adjustment part	Description
V. POSITION	Signal generator Remote control unit		[4. DEF] 1. V-SHIFT	**PAL V. POSITION** (1) Receive a circle pattern signal of vertical frequency 50Hz (PAL). (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<1. V-SHIFT>**. (4) Set the initial setting value of **<1. V-SHIFT>**. (5) Adjust **<1. V-SHIFT>** to make "**A = B**". (6) Press the **[OK]** key to memorize the set values. **NTSC V. POSITION** (1) Receive a circle pattern signal of vertical frequency 60Hz (NTSC). (2) Follow the same step 2 to 6 as in PAL V. POSITION.
				
V. SIZE	Signal generator Remote control unit		[4. DEF] 3. V-SIZE	**PAL V. SIZE** (1) Receive a PAL crosshatch signal. (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<3. V-SIZE>**. (4) Set the initial setting value of **<3. V-SIZE>**. (5) Adjust **<3. V-SIZE>** to make the vertical screen size to **92%** of the picture size. (6) Press the **[OK]** key to memorize the set values. **NTSC V. SIZE** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 6 as in PAL V. SIZE.
				
H. POSITION	Signal generator Remote control unit		[4. DEF] 4. H-CENT	**PAL H. POSITION** (1) Receive a PAL circle pattern signal. (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<4. H-CENT>**. (4) Set the initial setting value of **<4. H-CENT>**. (5) Adjust **<4. H-CENT>** to make "**C = D**". (6) Press the **[OK]** key to memorize the set values. **NTSC H. POSITION** (1) Receive a NTSC circle pattern signal. (2) Follow the same step 2 to 6 as in PAL H. POSITION.
				

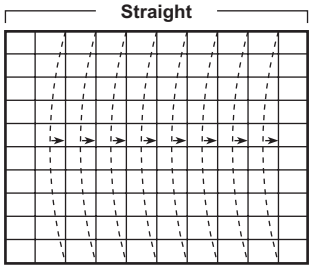
<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>H. SIZE</td><td>Signal generator

Remote control unit</td><td></td><td>[4.DEF]
5. H-SIZE</td><td rowspan="2">PAL H. SIZE
(1) Receive a PAL crosshatch signal.
(2) Select 4. DEF from the SERVICE MODE.
(3) Select <5. H-SIZE>.
(4) Set the initial setting value of <5. H-SIZE>.
(5) Adjust <5. H-SIZE> to make the horizontal screen size to 91% of the picture size.
(6) Press the [OK] key to memorize the set values.
NTSC H. SIZE
(1) Receive a NTSC crosshatch signal.
(2) Follow the same step 2 to 6 as in PAL H. SIZE.</td></tr>
<tr><td colspan="4"> 
</td></tr>
<tr><td>SIDE PIN</td><td>Signal generator

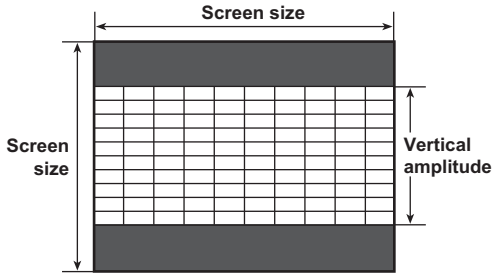
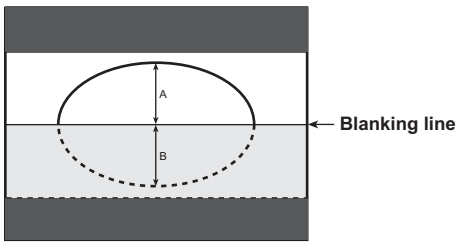
Remote control unit</td><td></td><td>[4. DEF]
7. EW-PIN</td><td rowspan="2">PAL SIDE PIN
(1) Receive a PAL crosshatch signal.
(2) Select 4. DEF from the SERVICE MODE.
(3) Select <7. EW-PIN>.
(4) Set the initial setting value of <7. EW-PIN>.
(5) Adjust <7. EW-PIN> so that the first vertical lines at the left and right edges on the screen are straight.
(6) Press the [OK] key to memorize the set values.
NTSC SIDE PIN
(1) Receive a NTSC crosshatch signal.
(2) Follow the same step 2 to 6 as in PAL SIDE PIN.</td></tr>
<tr><td colspan="4"> 
</td></tr>
<tr><td>TRAPEZIUM</td><td>Signal generator

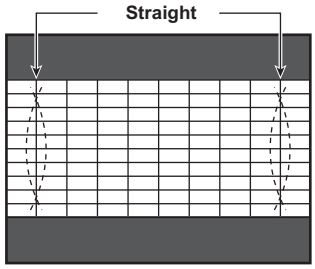
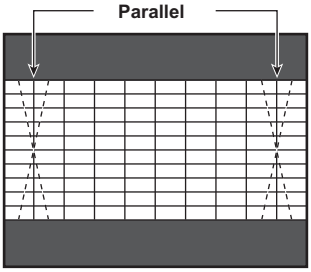
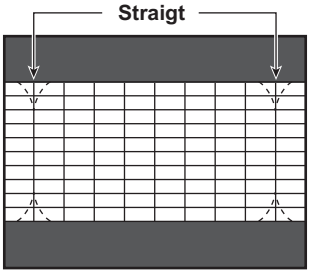
Remote control unit</td><td></td><td>[4.DEF]
6. TRAPEZ</td><td rowspan="2">PAL TRAPEZIUM
(1) Receive a PAL crosshatch signal.
(2) Select 4. DEF from the SERVICE MODE.
(3) Select <6. TRAPEZ>.
(4) Set the initial setting value of 6. TRAPEZ.
(5) Adjust <6. TRAPEZ> so that the vertical lines at the left and right edges on the screen are in parallel.
(6) Press the [OK] key to memorize the set values.
NTSC TRAPEZIUM
(1) Receive a NTSC crosshatch signal.
(2) Follow the same step 2 to 6 as in PAL TRAPEZIUM.</td></tr>
<tr><td colspan="4"> 
</td></tr>
</table>

Item	Measuring instrument	Test point	Adjustment part	Description
V.LINEARITY	Signal generator Remote control unit		[4. DEF] 12. V-S. CR 13. V-LIN	**PAL V. LINEARITY** (1) Receive a PAL crosshatch signal. (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<12. V-S.CR>**. (4) Set the initial setting value of **<12. V-S. CR>**. (5) Select **<13. V-LIN>**. (6) Set the initial setting value of **<13. V-LIN>**. (7) Adjust **<12. V-S. CR>** and **<13. V-LIN>** so that the spaces of each line on TOP, CENTRE and BOTTOM become uniform. (8) Press the **[OK]** key to memorize the set values. **NTSC V. LINEARITY** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 8 as in PAL V-S. CR.
				
CORNER PIN	Signal generator Remote control unit		[4. DEF] 8. COR-UP 9. COR-LO	**PAL CORNER PIN** (1) Receive a PAL crosshatch signal. (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<8. COR-UP>**. (4) Set the initial setting value of **<8. COR-UP>**. (5) Select **<9. COR-LO>**. (6) Set the initial setting value of **<9. COR-LO>**. (7) Adjust **<8. COR-UP>** and **<9. COR-LO>** so that the vertical lines at the four corners on the screen are straight. (8) Press the **[OK]** key to memorize the set values. **NTSC CORNER PIN** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 8 as in PAL CORNER.
				
H. PARALLEL	Signal generator Remote control unit		[4.DEF] 10. ANGLE	**PAL H. PARALLEL** (1) Receive a PAL crosshatch signal. (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<10. ANGLE>**. (4) Set the initial setting value of **<10. ANGLE>**. (5) Adjust **<10. ANGLE>** to optimize the trapezium distortion at the centre of the screen. (6) Press the **[OK]** key to memorize the set values. **NTSC H. PARALLEL** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 6 as in PAL H. PARALLEL.
				

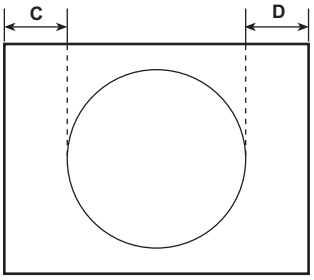
Item	Measuring instrument	Test point	Adjustment part	Description
H. BOW	Signal generator Remote control unit		[4.DEF] 11. BOW	**PAL H. BOW** (1) Receive a PAL crosshatch signal. (2) Select **4. DEF** from the SERVICE MODE. (3) Select **<11. BOW>**. (4) Set the initial setting value of **<11. BOW>**. (5) Adjust **<11. BOW>** to optimize the horizontal arc distortion. (6) Press the **[OK]** key to memorize the set values. **NTSC H. BOW** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 6 as in PAL H. BOW.
				

■ **COMPRESS : ON (16:9)**

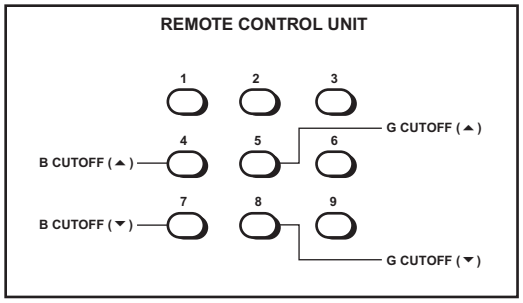
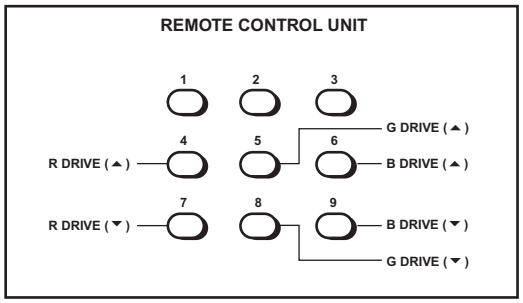
Item	Measuring instrument	Test point	Adjustment part	Description
V. SIZE	Signal generator Remote control unit		[4.DEF] 14. V. ZOOM 3. V-SIZE	**PAL V. SIZE** (1) Receive a circle pattern signal of vertical frequency 50Hz (PAL). (2) Set the COMPRESS(16 : 9) to ON. (3) Select **4. DEF** from the SERVICE MODE. (4) Set the initial setting value of **<14. V. ZOOM>**. (5) Select **<3. V-SIZE>**. (6) Set the initial setting value of **<3. V-SIZE>**. (7) Adjust **<3. V-SIZE>** to set the vertical amplitude of the image to the value shown in the left hand side list. (8) Press the **[OK]** key to memorize the set values. **NTSC V. SIZE** (1) Receive a crosshatch signal of vertical frequency 60Hz (NTSC). (2) Follow the same step 2 to 8 as in PAL V. SIZE.
 AV-2956BE Vertical amplitude: 305 mm				
V. SLOPE	Signal generator Remote control unit		[4.DEF] 2. V-SLOPE	**PAL V. SLOPE** (1) Receive a circle pattern signal of vertical frequency 50Hz (PAL). (2) Set the COMPRESS(16 : 9) to ON. (3) Select **4. DEF** from the SERVICE MODE. (4) Select **<2. V-SLOPE>**. (5) Set the initial setting value of **<2. V-SLOPE>**. (6) Adjust **<2. V-SLOPE>** to make "**A = B**". (7) Press the **[OK]** key to memorize the set values. **NTSC V. SLOPE** (1) Receive a circle pattern signal of vertical frequency 60Hz (NTSC). (2) Follow the same step 2 to 7 as in PAL V-SLOPE.
				

Item	Measuring instrument	Test point	Adjustment part	Description
SIDE PIN	Signal generator Remote control unit		[4. DEF] 7. EW-PIN	**PAL SIDE PIN** (1) Receive a PAL crosshatch signal. (2) Set the COMPRESS(16 : 9) to ON. (3) Select **4. DEF** from the SERVICE MODE. (4) Select **<7. EW-PIN>**. (5) Set the initial setting value of **<7. EW-PIN>**. (6) Adjust **<7. EW-PIN>** so that the first vertical lines at the left and right edges on the screen are straight. (7) Press the **[OK]** key to memorize the set values. **NTSC SIDE PIN** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 7 as in PAL SIDE PIN.
				
TRAPEZIUM	Signal generator Remote control unit		[4. DEF] 6. TRAPEZ	**PAL TRAPEZIUM PIN** (1) Receive a PAL crosshatch signal. (2) Set the COMPRESS(16 : 9) to ON. (3) Select **4. DEF** from the SERVICE MODE. (4) Select **<6. TRAPEZ>**. (5) Set the initial setting value of **<6. TRAPEZ>**. (6) Adjust **<6. TRAPEZ>** so that the vertical lines at the left and right edges on the screen are in parallel. (7) Press the **[OK]** key to memorize the set values. **NTSC TRAPEZIUM PIN** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 7 as in PAL TRAPEZIUM.
				
CORNER PIN	Signal generator Remote control unit		[4. DEF] 8. COR-UP 9. COR-LO	**PAL CORNER PIN** (1) Receive a PAL crosshatch signal. (2) Set the COMPRESS(16 : 9) to ON. (3) Select **4. DEF** from the SERVICE MODE. (4) Select **<8. COR-UP>**. (5) Set the initial setting value of **<8. COR-UP>**. (6) Select **<9. COR-LO>**. (7) Set the initial setting value of **<9. COR-LO>**. (8) Adjust **<8. COR-UP>** and **<9. COR-LO>** so that the vertical lines at the four corners on the screen are straight. (9) Press the **[OK]** key to memorize the set values. **NTSC CORNER PIN** (1) Receive a NTSC crosshatch signal. (2) Follow the same step 2 to 9 as in PAL CORNER PIN.
				

■ **VIDEO - 2 SET: COMPONENT**

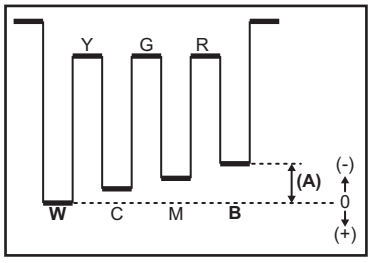
Item	Measuring instrument	Test point	Adjustment part	Description
H. POSITION	Signal generator Remote control unit		[4. DEF] 4. H-CENT	(1) Receive a PAL circle pattern signal to VIDEO-2 component terminal. (2) Select VIDEO-2 SET from the MENU and set VIDEO-2 SET to COMPONENT. (3) Select **4. DEF** from the SERVICE MODE. (4) Select **<4. H-CENT>**. (5) Set the initial setting value of **<4. H-CENT>**. (6) Adjust **<4. H-CENT>** to make "**C=D**". (7) Press the **[OK]** key to memorize the set values.
				

4.8.5 VIDEO CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE (Low light)	Signal generator Remote control unit		[2. V/C] 2. CUTOFF (B) 2. CUTOFF (G) SCREEN VR [In HVT]	**COMPOSITE WHITE BALANCE** (1) Receive a PAL black and white signal (colour off). (2) Set the PICTURE MODE to **BRIGHT**. (3) Select **2. V/C** from the SERVICE MODE. (4) Select **<2. CUTOFF> (B)** and **(G)**. (5) Set each value to initial setting value with the **[4]** / **[7]** keys and **[5]** / **[8]** keys. (6) Turn the **SCREEN VR** fully counterclockwise, then slowly turn it clockwise to where a red, blue or green colour is faintly visible. (7) Use the **[4]** / **[7]** and **[5]** / **[8]** keys to adjust so that the other 2 colours appear white. (8) Turn the **SCREEN VR** to where the single horizontal line glows faintly. (9) Press the **[OK]** key to memorize the set values. **COMPONENT WHITE BALANCE** (1) Receive a PAL component black and white signal (colour off). (2) Select VIDEO-2 SET from the MENU and set VIDEO-2 SET to COMPONENT. (3) Adjust COMPONENT WHITE BALANCE in the same way as "COMPOSITE WHITE BALANCE".
				
WHITE BALANCE (High light)	Signal generator Remote control unit		[2. V/C] 3. WDR (R) 3. WDR (G) 3. WDR (B)	(1) Receive a PAL black and white signal (colour off). (2) Set the PICTURE MODE to **BRIGHT**. (3) Select **2. V/C** from the SERVICE MODE. (4) Select **<3. WDR> (R)**, **(G)** and **(B)**. (5) Set each value to initial setting value with the **[4]** to **[9]** keys. (6) Use the **[4]** to **[9]** keys to produce a white screen. (7) Press the **[OK]** key to memorize the set values.
				

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>SUB BRIGHT</td><td>Remote control unit</td><td></td><td>[2. V/C]
4. BRIGHT</td><td>(1) Receive a NTSC broadcast.
(2) Set the PICTURE MODE to BRIGHT.
(3) Select 2. V/C from the SERVICE MODE.
(4) Select <4. BRIGHT>.
(5) Set the initial setting value of <4. BRIGHT>.
(6) If the brightness is not best with the initial setting value, make fine adjustment until you get the best brightness.
(7) Press the [OK] key to memorize the set values.</td></tr>
<tr><td>SUB CONTRAST</td><td>Remote control unit</td><td></td><td>[2. V/C]
5. CONT</td><td>(1) Receive a NTSC broadcast.
(2) Set the PICTURE MODE to BRIGHT.
(3) Select 2. V/C from the SERVICE MODE.
(4) Select <5. CONT>.
(5) Set the initial setting value of <5. CONT>.
(6) If the contrast is not best with the initial setting value, make fine adjustment until you get the best contrast.
(7) Press the [OK] key to memorize the set values.</td></tr>
<tr><td rowspan="2">SUB COLOUR</td><td>Remote control unit</td><td></td><td>[2. V/C]
6. COLOUR</td><td>[Method of adjustment without measuring instrument]
PAL COLOUR
(1) Receive a PAL M broadcast.
(2) Set the PICTURE MODE to BRIGHT.
(3) Select 2. V/C from the SERVICE MODE.
(4) Select <6. COLOUR>.
(5) Set the initial setting value of <6. COLOUR>.
(6) If the colour is not the best with the initial set value, make fine adjustment until you get the best colour.
(7) Press the [OK] key to memorize the set values.
SECAM COLOUR
(1) Receive a SECAM broadcast.
(2) Follow the same step 2 to 7 as in PAL COLOUR.
NTSC 3.58 COLOUR
(1) Receive a NTSC 3.58MHz broadcast.
(2) Follow the same step 2 to 7 as in PAL COLOUR.
NTSC 4.43 COLOUR
• When NTSC 3.58 COLOUR is set, NTSC 4.43 COLOUR will be automatically set.</td></tr>
<tr><td>Signal generator

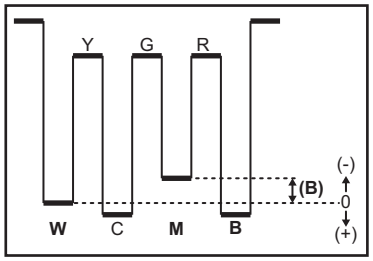
Oscilloscope

Remote control unit</td><td>TP-47B
TP-E
[CRT SOCKET PWB]</td><td>[2. V/C]
6. COLOUR</td><td>[Method of adjustment using measuring instrument]
PAL COLOUR
(1) Receive a PAL M colour bar signal (full field colour bar 75% white).
(2) Connect the oscilloscope between TP-47B and TP-E.
(3) Set the PICTURE MODE to BRIGHT.
(4) Select 2. V/C from the SERVICE MODE.
(5) Select <6. COLOUR>.
(6) Set the initial setting value of <6. COLOUR>.
(7) Adjust the value of (A) to the value in the voltage table in the left.
(8) Press the [OK] key to memorize the set values.
SECAM COLOUR
(1) Receive a SECAM colour bar signal (full field colour bar 75% white)
(2) Follow the same step 2 to 8 as in PAL COLOUR.
NTSC 3.58 COLOUR
(1) Receive a NTSC 3.58MHz broadcast.
(2) Follow the same step 2 to 8 as in PAL COLOUR.
NTSC 4.43 COLOUR
• When NTSC 3.58 COLOUR is set, NTSC 4.43 COLOUR will be automatically set.</td></tr>
<tr><td colspan="4"> 

<table>
<tr><th rowspan="2">VOLTAGE (W-B)</th><th colspan="3">Voltage setting</th></tr>
<tr><th>PAL</th><th>NTSC</th><th>SECAM</th></tr>
<tr><td>AV-2956BE</td><td>+28V</td><td>+20(RF)</td><td>+6V</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td rowspan="2">SUB TINT</td><td>Remote control unit</td><td></td><td>[2. V/C]
7. TINT</td><td rowspan="2">[Method of adjustment without measuring instrument]
PAL TINT
(1) Receive a PAL broadcast.
(2) Set the PICTURE MODE to BRIGHT.
(3) Select 2. V/C from the SERVICE MODE.
(4) Select <7. TINT>.
(5) Set the initial setting value of <7. TINT>.
(6) If you cannot get the best HUE with the initial setting value, make fine adjustment until you get the best TINT.
(7) Press the [OK] key to memorize the best values.
NTSC 3.58 TINT
(1) Receive a NTSC 3.58 broadcast.
(2) Follow the same step 2 to 7 as in PAL TINT.
NTSC 4.43 TINT
• When NTSC 3.58 TINT is set, NTSC 4.43 TINT will be automatically set.
PAL TINT (DVD)
(1) Receive a PAL broadcast.
(2) Set the PICTURE MODE to BRIGHT.
(3) Select 2. V/C from the SERVICE MODE.
(4) Select <10. TINT DVD>.
(5) Set the initial setting value of <10. TINT DVD>.
(6) If you cannot get the best HUE with the initial setting value, make fine adjustment until you get the best TINT.
(7) Press the [OK] key to memorize the best values.</td></tr>
<tr><td>Signal generator

Oscilloscope

Remote control unit</td><td>TP-47B
TP-E
[CRT SOCKET PWB]</td><td>[2. V/C]
7. TINT</td></tr>
<tr><td colspan="4"> 

<table>
<tr><th rowspan="2">VOLTAGE (W-B)</th><th colspan="2">Voltage setting</th></tr>
<tr><th>NTSC 3.58 (TINT)</th><th>PAL TINT (DVD)</th></tr>
<tr><td>AV-2956BE</td><td>+3V(RF)</td><td>+20V</td></tr>
</table></td><td>[Method of adjustment using measuring instrument]
PAL TINT
(1) Receive a PAL colour bar signal (full field colour bar 75% white).
(2) Connect the oscilloscope to TP-47B and TP-E.
(3) Set the PICTURE MODE to BRIGHT.
(4) Select 2. V/C from the SERVICE MODE.
(5) Select <7. TINT>.
(6) Set the initial setting value of <7. TINT>.
(7) If you cannot get the best HUE with the initial setting value, make fine adjustment until you get the best TINT.
(8) Press the [OK] key to memorize the best values.
NTSC 3.58 TINT
(1) eceive a NTSC 3.58 colour bar signal (full field colour bar 75% white).
(2) Follow the same step 2 to 8 as in PAL TINT.
NTSC 4.43 TINT
• When NTSC 3.58 TINT is set, NTSC 4.43 TINT will be automatically set.
PAL TINT (DVD)
(1) Receive a PAL colour bar signal (full field colour bar 75% white).
(2) Connect the oscilloscope to TP-47B and TP-E.
(3) Set the PICTURE MODE to BRIGHT.
(4) Select 2. V/C from the SERVICE MODE.
(5) Select <10. TINT DVD>.
(6) Set the initial setting value of <10. TINT>.
(7) If you cannot get the best HUE with the initial setting value, make fine adjustment until you get the best TINT.
(8) Press the [OK] key to memorize the best values.</td></tr>
</table>

4.8.6 VSM PRESET SETTING

Item	Measuring instrument	Test point	Adjustment part	Description
VSM PRESET	Remote control unit		[5.VSM W/B] 1. BRIGHT 2. CONT 3. COLOUR 4. SHARP 5. HUE 1. R-DRIVE 2. G-DRIVE 3. B-DRIVE	(1) Select **5.VSM W/B** from the SERVICE MODE. (2) Select the **BRIGHT** with the **[OK]** key. (3) Adjust the **[MENU ◀ / ▶]** key to bring the set values of **<1. BRIGHT>** - **<5. HUE>** to the values shown in the table. (4) Press the **[OK]** key to memorize the set values. (5) Respectively select the VSM PRESET mode for **STANDARD**, **SOFT** and **THEATER**. (6) Select **COOL** with the **[OK]** key. (7) Adjust the **[MENU ◀ / ▶]** key to bring the set values of **<1. R DRIVE>** to **<3. B DRIVE>** to the values shown in the table. (8) Press the **[OK]** key to memorize the set values. (9) Respectively select the WIHITE BALANCE mode for **WARM** and **NORMAL**.

Setting item	Variable range	Setting value			
		BRIGHT	SOFT	STANDARD	THEATER
1. BRIGHT	-16 - 16	0	0	0	-4
2. CONT.	-16 - 16	+15	+5	+10	+5
3. COLOUR	-16 - 16	0	+0	-4	-8
4. SHARP	-16 - 16	0	-10	-5	0
5. HUE	-16 - 16	0	0	0	0

W/B preset / Setting item	COOL	NORMAL	WARM	THEATER
1. R DRIVE	0	0	+10	+8
2. G DRIVE	0	+2	-4	0
3. B DRIVE	0	-10	-12	-24

4.8.7 PURITY AND CONVERGENCE

■ **PURITY ADJUSTMENT**

NOTE:

The final adjustment of CONVERGENCE must be done after the FOCUS adjustment. (CONVERGENCE is changed by FOCUS adjustment.)
When makes difference by FOCUS adjustment, should be reconfirming PURITY adjustment.

(1) Demagnetize CRT with the demagnetizer.

(2) Loosen the retainer screw of the deflection yoke.

(3) Remove the wedges.

(4) Input a green raster signal from the signal generator, and turn the screen to green raster.

(5) Move the deflection yoke backward.

(6) Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig.2)

(7) Adjust the gap between two lugs so that the GREEN RASTER will come into the centre of the screen. (Fig.3)

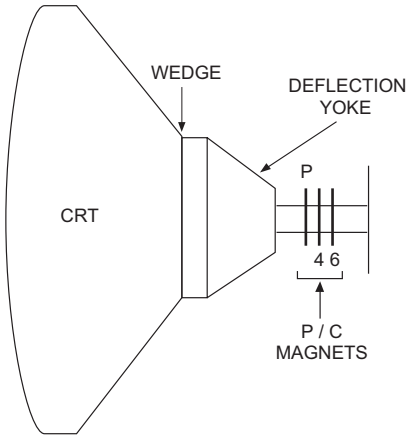
(8) Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.

(9) Insert the wedge to the top side of the deflection yoke so that it will not move.

(10) Input a crosshatch signal.

(11) Verify that the screen is horizontal.

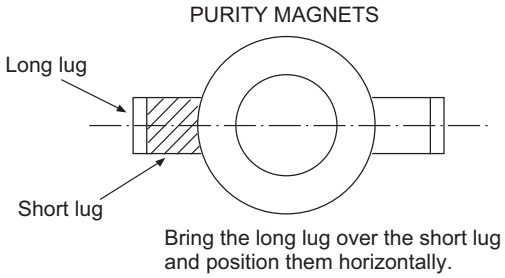
(12) Input red and blue raster signals, and make sure that purity is properly adjusted.



• P/C MAGNETS

P : PURITY MAGNET
4 : 4 POLES (convergence magnets)
6 : 6 POLES (convergence magnets)

Fig.1



Bring the long lug over the short lug and position them horizontally.

Fig.2

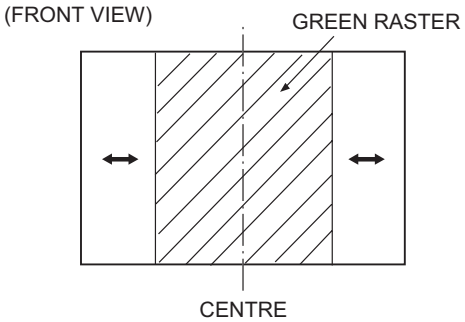


Fig.3

■ STATIC CONVERGENCE ADJUSTMENT

(1) Input a crosshatch signal.

(2) Using 4-pole convergence magnets, overlap the red and blue lines in the centre of the screen (Fig.1) and turn them to magenta (red/blue).

(3) Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the centre of the screen and turn them to white.

(4) Repeat 2 and 3 above, and make best convergence.

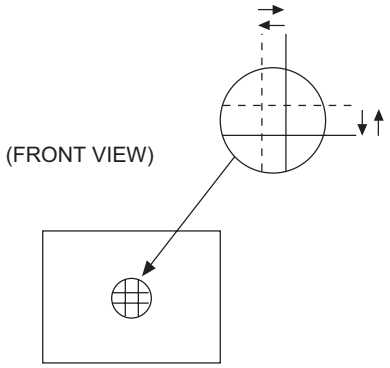


Fig.1

■ DYNAMIC CONVERGENCE ADJUSTMENT

(1) Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)

(2) Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)

(3) Repeat 1 and 2 above, and make best convergence.

(4) Adjust XV by XV coil. (Fig.4)

• After adjustment, fix the wedge at the original position. Fasten the retainer screw of the deflection yoke. Fix the P/C magnets with glue.

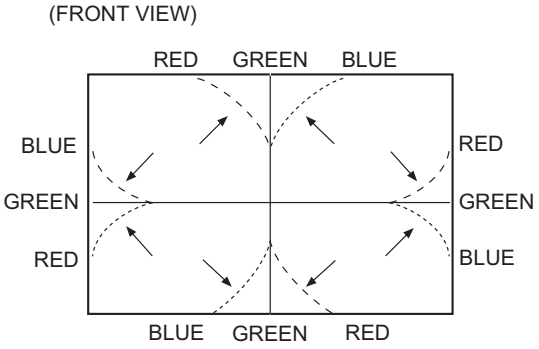


Fig.2

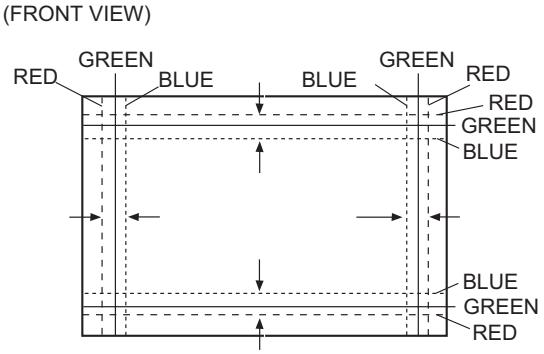


Fig.3

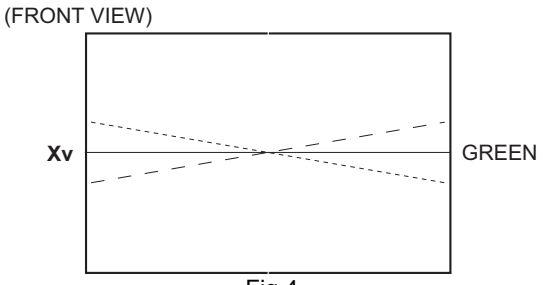


Fig.4

SECTION 5
TROUBLESHOOTING

5.1 SELF CHECK FUNCTIONS

5.1.1 OUTLINE

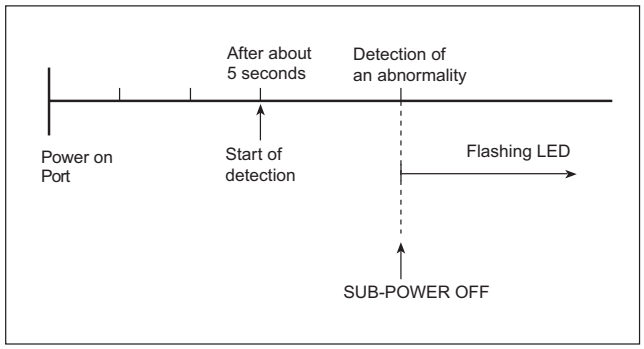
This model has self check functions given below. When an abnormality has been detected, the SUB POWER is turned off and POWER LED flashes to inform of the failure. An abnormality is detected by the signal input state of the control line connected to the microcomputer.

5.1.2 SELF CHECK ITEMS

Check item	Details of detection	Method of detection	State of abnormality
B1 over-current protection	An over-current on the low B1 line is detected.	The main microcomputer detects the possible abnormality at 24-msec. intervals and judges the results in every 16 time. Of the 16 times, if NG is detected more than 9 times, it is judged that there is an abnormality.	When an abnormality has been detected, the SUB-POWER is turned off. While the SUB-POWER is being turned off, the POWER key on the remote control unit is not operational until the power cord is disconnected and connected again.
CRT neck broken protection	Operation of CRT neck protection circuit.		

5.1.3 SELF CHECK INDICATING FUNCTION

When an abnormality has been detected at about 5 seconds after the power was turned on, the SUB POWER is turned off immediately and the POWER LED flashes.



[INDICATION BY THE POWER LED]

Item	LED flashing intervals
B1 over-current protection / CRT neck broken protection	0.3 seconds

JVC
Victor Company of Japan, Limited
Display Category 12, 3-chome, Moriya-cho, Kanagawa-ku, Yokohama-city, Kanagawa-prefecture, 221-8528, Japan

(No.YA466)

Printed in Japan
VPT

JVC

COLOUR TELEVISION

EQUALIZER • CINEMA SURROUND • COMPONENT INPUT

AV-2988SE
AV-2986ME
AV-2986SE
AV-2956BE
AV-2956ME

AV-2586ME

AV-2186ME
AV-2156BE
AV-2156ME

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INSTRUCTIONS

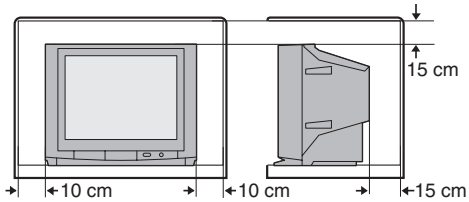
GGT0120-001A-H

Thank you for buying this JVC colour television.
To make sure you understand how to use your new TV, please read this manual thoroughly before you begin.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

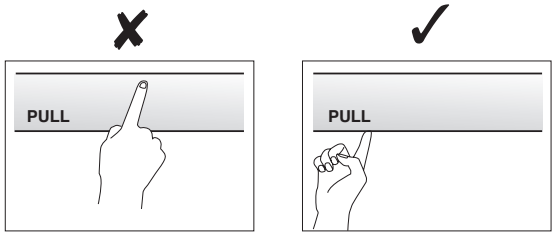
CAUTION: TO ENSURE PERSONAL SAFETY, OBSERVE THE FOLLOWING RULES REGARDING THE USE OF THIS TV.

1 Operate only from the power source indicated on the rear of the TV.
2 Avoid damaging the power cord and mains plug. When unplugging the TV, grasp the mains plug. Do not pull on the power cord.
3 Never block or cover the ventilation openings.
Never install the TV where good ventilation is unattainable.
When installing this TV, leave spaces for ventilation around the TV of more than the minimum distances as shown.

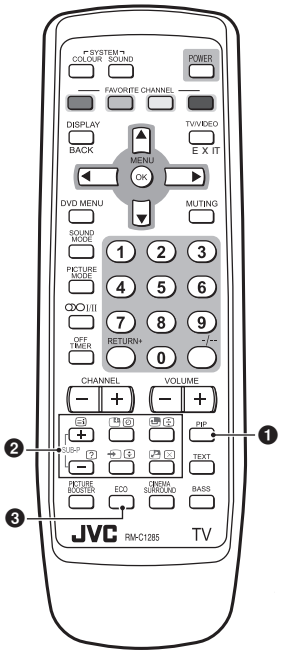


4 Do not allow objects or liquid into the cabinet openings.
5 In the event of a fault, unplug the unit and call a service technician. Do not attempt to repair it yourself or remove the rear cover.
6 The surface of the TV screen is easily damaged. Be very careful with it when handling the TV. Should the TV screen become soiled, wipe it with a soft dry cloth. Never rub it forcefully. Never use any cleaner or detergent on it.
7 This TV can be turned on/off power by connecting/disconnecting the AC plug into AC outlet. While this TV is being installed, enough space should be reserved for connection/disconnecting the AC plug into AC outlet by hand.
8 The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

WARNING: <AV-21M, AV-25M, AV-29M, AV-21B, AV-29B Series>
YOU CAN DETACH THE PROTECT SHEET ON THE TOP AND BOTTOM OF FRONT FRAME IF YOU NEEDED.
THE FRONT BUTTON DOOR OF THE TV SHOULD BE PULLED OUT FROM ITS BOTTOM. DO NOT PRESS THE UPPER PART, OR YOUR FINGER MAY BE PINCHED.



Knowing your TV's features



Main features

DVD MENU	Just connect DVD player to the television. The television will detect DVD signal and display picture on the screen automatically and you can adjust pictures and sound while you are watching DVD as your desire. When disconnect DVD player, the television will display the previous channel.
MaxxBass	MaxxBass enhances bass sound that cannot be reproduced by normal speakers to be heard by our ears.
PIP (Picture In Picture)	You can view two screens (Main picture and Sub picture) at the same time.
TELETEXT	You can view teletext programmes which are broadcasted by some TV channels. Teletext programme is an infromation in text form.
FAVORITE CH (Channel)	You can register up to four favorite channels for quick recall with one press.
A2/NICAM (STEREO / I·II)	You can listen the stereo sound or billingal sound from TV programme broadcasting by A2 or NICAM Sound-multiplex system.
AI ECO SENSOR	TV detects the brightness of your room and automatically adjust the picture brightness to a suitable level for a better eyecare.
ECO MODE	You can adjust TV screen contrast according to the brightness of your room to suitable level for a better eyecare.
AI VOLUME	TV adjusts the volume automatically to the same level for all TV channels to avoid sudden change of the volume when selecting different TV channels or selecting Video Mode.
TINT	You can adjust TINT setting for all colour systems, including PAL.

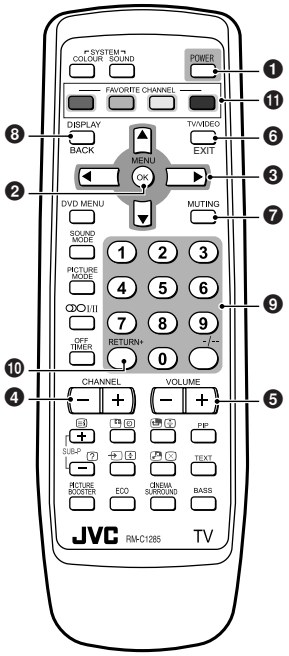
Confirm your TV's functions

Some functions written in this instruction manual may not be available for your TV.
Please see the chart below and check the functions that are equipped for your TV's model number.
The model number is indicated at the rear of your TV. When you press a button concerned to a function that is not available for your TV, it does not work and the logo "Ø" appears on the screen.

No.	Function \ Model No.	AV-2988SE	AV-2986ME	AV-2986SE	AV-2956BE	AV-2956ME	AV-2586ME	AV-2186ME	AV-2156BE	AV-2156ME
❶ , ❷	PIP control buttons (Green label)	O	O	O	–	–	O	O	–	–
–	MaxxBass	O	O	O	–	O	O	O	–	O
–	PICTURE TILT	O	O	O	O	O	–	–	–	–
❸	AI ECO SENSOR	O	O	O	–	O	O	O	–	O
❸	ECO MODE	–	–	–	O	–	–	–	O	–

Remote control buttons and basic functions

No.	Press	To
❶	POWER	Turn on or off the TV from standby mode.
❷	MENU/OK	Display menu and confirm selected function.
❸	▲ / ▼ / ◄ / ►	Select and adjust menu function.
❹	CHANNEL -/+	Select the desired channel number.
❺	VOLUME -/+	Adjust the volume level.
❻	TV/VIDEO EXIT	Select TV or video terminal input. On the other hand, you can use this button to EXIT from the menu.
❼	MUTING	Turn off the volume. Press this button again to resume the volume.
❽	DISPLAY /BACK	Display the programme number or video terminal number, stereo/bilingual broadcast system and PR list (channel list) on the screen. You can select the channel using the PR list. **1** Press the DISPLAY button once to display the PR list. **2** Press ▲ / ▼ / ◄ / ► buttons to choose a channel, then press the MENU/OK button. You can confirm the favorite channels in the PR list. The channels set to favorite channels are indicated with coloured mark. On the other hand, you can use this button to return to the previous menu.
❾	0~9, -/--	Select the programme number. For two digits programme number, press -/--, then press the number button.
❿	RETURN+	a) Return to the frequently view channel with one touch. **1** Choose the channel you want to register. **2** Press and hold RETURN+ button until “RETURN PLUS PROGRAMMED!” appears. To cancel, press and hold RETURN+ button until “RETURN PLUS CANCELED!” appears. b) Return to the previously viewed channel, if you have not set or have cancelled the Return channel as above.
⓫	FAVORITE CHANNEL (colour buttons: red, green, yellow, blue)	Register and recall 4 favorite channels. 1. Choose the TV channel you want to register then press and hold a colour button until “PROGRAMMED! ■" appears. 2. To register other favorite channels, repeat step 1. To recall the favorite channel, press the corresponding colour button. When the TV is in Text function or MENU mode, the favorite channel function is not available. When the TV is in PIP function, the favorite channel function cannot register but can recall the favorite channel.



Remote control buttons and basic functions (continued)

How to operate menus and menus locations

To	Operation	Note
Display the MENU	Press the MENU/OK button ❷. PICTURE MENU is displayed on first press.	To exit the MENU, press the DISPLAY/ BACK button ❽ or choose EXIT menu or TV/VIDEO/EXIT button ❻.
Choose a Top menu	Press ◄/► buttons ❸ to choose a menu title when the cursor is pointing at MENU.	—
Choose a 2nd menu	Press ▲/▼ buttons ❸ to choose a 2nd menu title.	Press ▼ button ❸ to display the next functions.
Display the 3rd menu	Press ▲/▼ buttons ❸ to choose a 2nd menu title. Then press MENU/ OK button ❷.	
Return to the previous menu	Press the DISPLAY/BACK button ❽.	—
Choose the setting of a function	Press ▲/▼ buttons ❸ to choose a function. Then press the ◄/► buttons ❸ to change the setting.	Press the TV/ VIDEO/ EXIT button ❻ to exit from the menu.
Adjust the effect level of a function	Press ▲/▼ buttons ❸ to choose a function. Then press the ◄/► buttons ❸ to adjust the effect level.	
Display the sub menu of a function.	Press the ▲/▼ buttons ❸ to choose a function. Then press MENU/OK button ❷ to display the sub menu.	—

The following chart shows locations of functions in menus. In this manual, location of a function is described as follows:

(MENU) ➔ (Top menu) ➔ (2nd menu)
(MENU) ➔ (Top menu) ➔ (2nd menu) ➔ (3rd menu)

Note: Some functions have the 4th menus as the sub-menus.

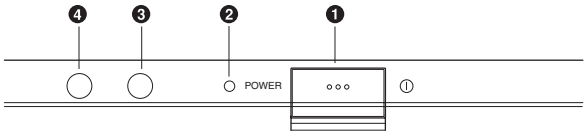
	Top menu	2nd menu	Location	3nd menu	Location
MENU	PICTURE	PICTURE MODE	P.9	–	–
		PICTURE SETTING	P.10	CONTRAST	P.10
				BRIGHT	P.10
				SHARP	P.10
				COLOUR	P.10
				TINT	P.10
		WHITE BALANCE	P.10	–	–
		VNR	P.17	–	–
	SOUND	STEREO/I•II	P.15	–	–
		AI VOLUME	P.15	–	–
		SOUND MODE	P.14	–	–
		EQUALIZER	P.15	–	–
		BALANCE	P.14	–	–
		CINEMA SURROUND	P.15	–	–
		MaxxBass	P.15	–	–
	FEATURES	DVD MENU	P.16	AUTO SIGNAL DETECT	P.16
				DVD PICTURE MODE	P.16
				DVD THEATER STATUS	P.16
				DVD SOUND MODE	P.16
		ON TIMER	P.17	PR	P.17
				ON TIMER	P.17
		OFF TIMER	P.17	–	–
		CHILD LOCK	P.17	–	–
		COMPRESS (16:9)	P.11	–	–
		AI ECO SENSOR/ ECO MODE	P.11	–	–
	INSTALL	AUTO PROGRAM	P.19	–	–
		EDIT/MANUAL	P.19	DELETE, MOVE, MANUAL, INSERT	P.19-P.20
		COLOUR SYSTEM	P.9	–	–
		LANGUAGE	P.17	LANGUAGE	P.17
		TEXT LANGUAGE	P.13	TEXT LANGUAGE	P.13
		VIDEO-2 SETTING	P.18	–	–
		BLUE BACK	P.11	–	–
		PICTURE TILT	P.11	–	–
		BEEP	P.18	–	–

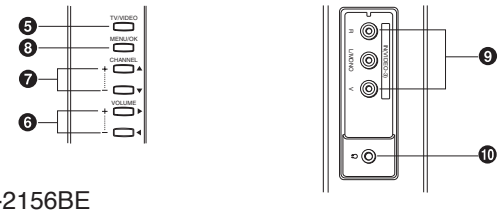
TV buttons and functions

The illustrations shown below is for AV-2156BE and AV-2988SE only, which are used for explanation purpose.
Your TV may not look exactly the same as illustrated.

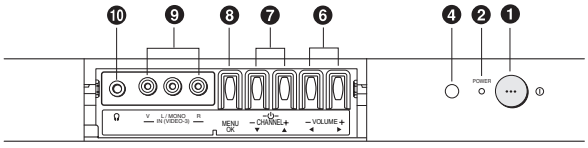
Front of the TV

AV-2988SE



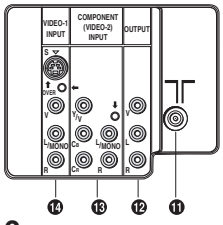


AV-2156BE



Rear of the TV

AV-2988SE



No.	Button/terminal	Description	Page
❶	⏻ (main power)	Press to turn on or turn off the TV's main power.	–
❷	POWER lamp	Indicate the TV's status. No colour : TV's main power is being turned off. Red : TV's main power is being turned on. Blink : While the TV is in standby mode, ON TIMER funciton is in used. While the TV is in turn on mode , OFF TIMER function is in used. Note: When you turn off the power switch while TV is in standby mode, the power lamp will go off in 10 -15 seconds. When you operate the TV, POWER Lamp will be blink.	–
❸	ECO sensor		–
❹	Remote control sensor		–
❺	TV/VIDEO	Press to select TV or Video terminal input or exit from menu.	–
❻	VOLUME -/+	Press to adjust the volume level.	–
❼	CHANNEL -/+	Press to select the desired channel (Both of RF and Video input.)	–
❽	MENU/OK	Press to display the menu.	–
❾	IN (VIDEO-3)	Video and audio input jacks for VIDEO-3 mode.	22
❿	🎧	Headphone jack.	22
⓫	⊤	Aerial socket.	7
⓬	OUTPUT	Video and audio output jacks. (The component video signal cannot be output.)	22
⓭	COMPONENT (VIDEO-2) INPUT	Video or component video, and audio input jacks for VIDEO-2 mode. You can select the input signal by setting the "VIDEO-2 SETTING" function (see page 18).	22
⓮	VIDEO-1 INPUT	Video or S-VIDEO, and audio input jacks for VIDEO-1 mode.	7

How to operate the menus with the TV button

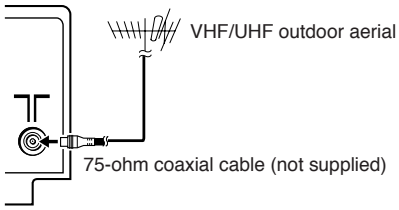
TV button	Work as same as the button on the remote control unit	Note
MENU	MENU/OK button	To display main menu and exit menu after finish setting.
CHANNEL -/+	▼/▲ button	To select menu function.
VOLUME -/+	◄/► button	To choose a Top menu and adjust the desired menu function.

Setting up your TV

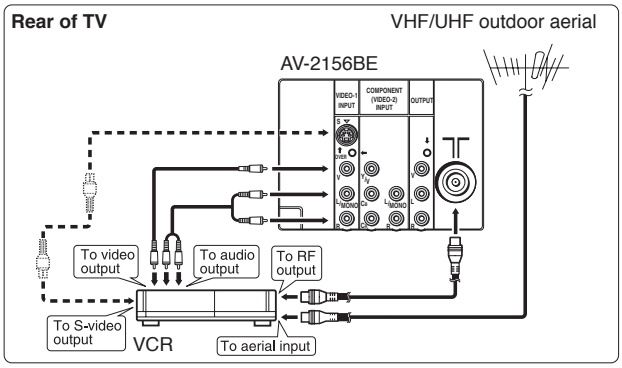
CAUTION

- Turn off the equipment including the TV before connecting.

1 Connecting the aerial cable.

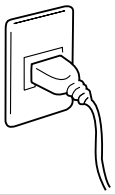


If you connect a VCR, connect the aerial output jack of your VCR and the aerial jack on the TV with aerial cable. Then connect the output jacks of your VCR and the VIDEO-1 input jacks of the TV with the video cable (or S-VIDEO cable if available) and audio cables. For details, see the manual of your VCR.



The illustration shown is just a sample. It may not be same as your TV.

2 Connecting the main plug to the AC outlet.



3 Inserting batteries into the remote control.

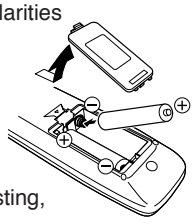
Insert two batteries by following the ⊕ and ⊖ polarities and inserting the ⊖ end first.

CAUTION:

Follow the cautions printed on the batteries.

Notes:

- Use AA/R6/UM-3 dry cell batteries.
- If the remote control does not work properly, fit new batteries. The supplied batteries are for testing, not regular use.



4 Turn on the TV by pressing the main power button.

JVC logo appears on the screen.

JVC logo will appear on the screen again at the phase of “SETUP TOUR RESTART?” function. Then the initial setting can be performed according to page 8.

Note:

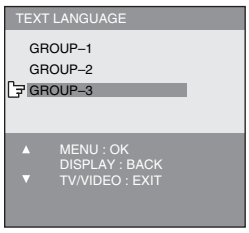
While in the INSTALL menu with the cursor pointing at INSTALL, pressing the blue button will also display the JVC logo.

Setting up your TV (continued)

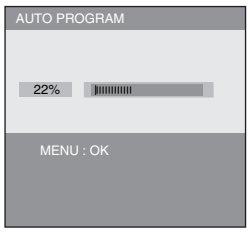
5 Making the initial settings

Set up your TV by pressing MENU/OK button or waiting for 15 seconds, then operate the TV by following the steps below:

- Press ▲/▼ button to select your desired language.

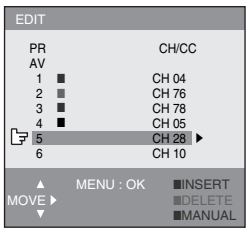


- Press ▲/▼ button to select your desired Teletext language group. For details, see page 13.



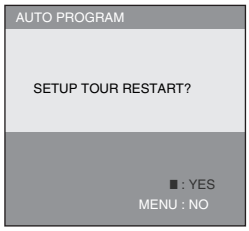
- TV will start searching for the channels.

  To stop AUTO PROGRAM, press MENU/OK button.



- To complete the initial setting, press the MENU/OK button. To edit the channel list, see page 19.

When turn on the TV at the next time



- "SETUP TOUR RESTART?" will be displayed.
  Press the MENU/OK button to cancel the SETUP TOUR RESTART function.
  If you want to make initial settings again when the next time you turn on the TV, press the Red button to activate the SETUP TOUR RESTART function.

Basic setting for picture

COLOUR SYSTEM

You can select the appropriate colour system when the picture is not clear or no colour appears.
Press the COLOUR SYSTEM button to select a setting.

AUTO → PAL → SECAM → NTSC3.58
↑ NTSC4.43 ←

To operate this function with a menu:

✳ (MENU) ➔ (INSTALL menu) ➔ (COLOUR SYSTEM)

For the colour system in each country or region, see the table below:

Area	Country or Region	System
Asia, Middle East	Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Yemen, etc. Indonesia, Malaysia, Singapore, Thailand, India, etc.	PAL
	China, Vietnam, etc.	PAL
	Hong Kong, etc.	PAL
	Islamic Republic of Iran, Lebanon, Saudi Arabia, etc.	SECAM
	Philippines, Taiwan, Myanmar, etc.	NTSC
Europe	Russia, etc.	SECAM
	Czech Republic, Poland, etc.	PAL
	Germany, Holland, Belgium, etc.	PAL
	UK, etc.	PAL
Oceania	Australia, New Zealand, etc.	PAL
Africa	Republic of South Africa, etc.	PAL
	Nigeria, etc.	PAL
	Egypt, Morocco, etc.	SECAM

PICTURE MODE

You can choose the desired picture setting with one-touch.
Press the PICTURE MODE button to select a setting.

SOFT	Softens contrast and sharpness.
BRIGHT	Heightens contrast and sharpness.
STANDARD	Standard picture setting.
USER	You can change this picture setting as you like. Select USER and adjust following items in the PICTURE SETTING menu. (CONTRAST, BRIGHT, SHARP, COLOUR, TINT)

When you select VIDEO-2 Mode, you cannot adjust SHARP.
When you set DVD THEATER STATUS in DVD MENU to ON, you cannot adjust PICTURE MODE.

To operate this function with a menu:

✳ (MENU) ➔ (PICTURE menu) ➔ (PICTURE MODE)

To return the USER setting to default, press the blue button when the PICTURE SETTING menu is displayed.

✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

PICTURE SETTING

You can adjust the desired picture setting when selecting USER in PICTURE MODE.

1 Select USER in PICTURE MODE under PICTURE menu.

✳ (MENU) ➔ (PICTURE menu) ➔ (PICTURE MODE) ➔ (USER)

2 Select PICTURE SETTING in PICTURE menu, then adjust the setting.

✳ (MENU) ➔ (PICTURE menu) ➔ (PICTURE SETTING)

CONTRAST	◄ : Lower contrast	► : Higher contrast
BRIGHT	◄ : Darker	► : Brighter
SHARP	◄ : Softer	► : Higher
COLOUR	◄ : Lighter	► : Deeper
TINT	◄ : Reddish	► : Greenish

When you select VIDEO-2 Mode, you cannot adjust SHARP.

WHITE BALANCE

You can change the white balance of the picture to better match the type of video being viewed.
Select WHITE BALANCE in the PICTURE menu, then choose the desired setting.

✳ (MENU) ➔ (PICTURE menu) ➔ (WHITE BALANCE)

NORMAL	Normal white balance.
COOL	Bluish white.
WARM	Reddish white.

When you set DVD THEATER STATUS in DVD MENU to ON, you cannot adjust WHITE BALANCE.

✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

Advanced setting for picture

AI ECO SENSOR (ECO)/ECO MODE

You can adjust TV screen contrast according to the brightness of your room.

Press the ECO button to select the desired mode.

OFF	Cancel the function.
MODE-1/ECO-1	Mild contrast (recommended.)
MODE-2/ECO-2	Even contrast.
DISPLAY (for AI ECO SENSOR only)	Display the graphic of the function.

To operate this function with a menu:

✳ (MENU) ➔ (FEATURES menu)
➔ (AI ECO SENSOR / ECO MODE)

When you set DVD THEATER STATUS in DVD MENU to ON, you cannot adjust AI ECO SENSOR / ECO MODE.

Note : AI ECO SENSOR for M and S series.
ECO MODE for B series.

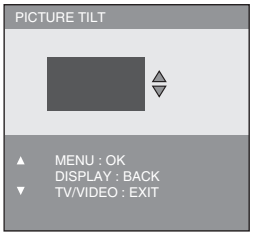
Correcting the Slanting Picture (PICTURE TILT)

You can correct the picture tilt caused by the earth's magnetic force.

1 Select PICTURE TILT in the INSTALL menu, then press MENU/OK button.

✳ (MENU) ➔ (INSTALL menu) ➔ (PICTURE TILT)

The following display appears.



2 Press the ▲/▼ buttons until the picture becomes level. Then press the MENU/OK button.

COMPRESS (16:9)

You can convert a normal picture (4:3 aspect ratio) into a wide picture (16:9 aspect ratio).

Select COMPRESS (16:9) in the FEATURES menu, then choose ON or OFF.

✳ (MENU) ➔ (FEATURES menu) ➔ (COMPRESS (16:9))

BLUE BACK

You can set the TV to automatically change to a blue screen and mute the sound if the signal is weak or absent, or when there is no input from an antenna.

Select BLUE BACK in the INSTALL menu, then choose ON or OFF.

✳ (MENU) ➔ (INSTALL menu) ➔ (BLUE BACK)

If you wish to continue viewing the poor picture, off the BLUE BACK function.

✳ About the basic operations of the menu, please see the "How to operate menus and menus locations" on page 5.

Original features for picture

PIP

You can display a sub picture within the main picture on the screen. Press the PIP operation buttons to display and change the sub picture setting.

PIP — Display the sub picture.
To cancel, press the PIP button again.

Notes:

- You can hear the sound from the main picture only.
- When main picture and sub picture are the same TV channel.

Press SUB-P -/+	Main picture will be changed TV channel follow as sub picture.
Press (Input)	To change sub picture to video mode.

Press CHANNEL -/+	Sub picture will be changed TV channel follow as Main picture.
Press CHANNEL -/+	Until main picture change to video mode.

SUB-P -/+	Select the desired TV channel for sub picture.
(Input)	Select the input source for the sub picture.
(Swap)	Swap between the main picture and sub picture.
(Position)	Change the sub picture position. Each time you press the (Position) button, the sub picture position will change as follows: lower right → lower left → upper left → upper right → lower right
(Freeze)	Freeze the sub picture.

When VIDEO-2 is set to component, you cannot select VIDEO-2 for sub picture. If the main picture input source is VIDEO-2 with component, the PIP function is disabled.

TELETEXT

You can watch the Teletext broadcast channel with TEXT function.

1 Press the TEXT button to select the desired mode as follows:

TV mode → TEXT twin mode → TEXT mode → TV mode

2 Press the CHANNEL -/+ buttons, number buttons or colour buttons to select other Teletext pages.

3 Press TEXT or TV/VIDEO button to return to TV mode.

You can also operate the teletext using the following buttons:

(Hold)	Hold a teletext page. The (Hold) icon is displayed at the top left of the screen. To cancel, press (Hold) button again.
(Reveal)	Display the hidden text (e.g. answers to a quiz). To cancel, press (Reveal) button again.
(Size)	Enlarge the teletext display.
(Index)	Return to the index page instantly.
(Cancel)	Watch TV programme while waiting for a teletext page. When the teletext page is found, a page number appears at the upper left of the screen. Press (Cancel) button to view the teletext page.
(Sub-page)	Operate the (Sub-page) function. Sub-page numbers are displayed at the left of the screen. To cancel sub-page function, press (Sub-page) button again.

Original features for picture (continued)

TEXT LANGUAGE

You can set the Teletext language group that corresponds to the programmes.
Select TEXT LANGUAGE in the INSTALL menu, then choose the desired language group.

✳ (MENU) ➔ (INSTALL menu) ➔ (TEXT LANGUAGE)

GROUP-1	English, German, Swedish, Finnish, Danish, Hungarian, Italian, French, Spanish, Portuguese, Turkish
GROUP-2	Polish, German, Estonian, Slovenian, Czech, Slovakian, Rumanian
GROUP-3	Polish, German, Estonian, Lettish, Russian, Ukrainian

Depending on the broadcast, the language set may not display properly. For details, refer to page 8.

✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

Basic setting for sound

SOUND SYSTEM

You can select an appropriate sound system when abnormal sound occurs even when the picture appears normally.
Press the SOUND SYSTEM button to select a setting.

B/G → I → D/K → M

This function is not available in video mode.
For the sound system in each country or region, see the table below:

Area	Country or Region	System
Asia, Middle East	Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Yemen, etc. Indonesia, Malaysia, Singapore, Thailand, India, etc.	B/G
	China, Vietnam, etc.	D/K
	Hong Kong, etc.	I
	Islamic Republic of Iran, Lebanon, Saudi Arabia, etc.	B/G
	Philippines, Taiwan, Myanmar, etc.	M
Europe	Russia, etc.	D/K
	Czech Republic, Poland, etc.	D/K
	Germany, Holland, Belgium, etc.	B/G
	UK, etc.	I
Oceania	Australia, New Zealand, etc.	B/G
Africa	Republic of South Africa, etc.	I
	Nigeria, etc.	B/G
	Egypt, Morocco, etc.	B/G

SOUND MODE

You can choose the desired sound setting.
Select the SOUND MODE in SOUND menu, then choose the setting.

✳ (MENU) ➔ (SOUND menu) ➔ (SOUND MODE)

USER	You can change this sound setting as you like. Select USER and adjust the frequencies in EQUALIZER (100, 300, 1K, 3K, 8K Hz). For details, see “EQUALIZER” on page 15.
SOUND TURBO	Emphasize on low and high frequency levels.
THEATER	Emphasize on movie sound.
MUSIC	Emphasize on music effect.
NEWS	Emphasize on vocal sound.

When you select VIDEO-2, you cannot adjust SOUND MODE function. You can adjust it in DVD Menu.

When SOUND MODE is set to SOUND TURBO, EQUALIZER, CINEMA SURROUND and MaxxBass functions are not available.

BALANCE

You can adjust the volume balance between the left and right speakers.
Select BALANCE in SOUND menu, then adjust the setting.

✳ (MENU) ➔ (SOUND menu) ➔ (BALANCE)

✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

Advanced setting for sound

CINEMA SURROUND

You can enjoy an enhanced sound for wider audience.
Press the CINEMA SURROUND button to select a setting.

OFF	Cancel the function.
ON	Listen to sound with wider audience effect.

This function is not available when SOUND MODE is set to SOUND TURBO.
To operate this function with a menu:

✳ (MENU) ➔ (SOUND menu) ➔ (CINEMA SURROUND)

STEREO / I-II (I/II)

You can enjoy the stereo and bilingual broadcasted programmes.
Press the I/II button to select the desired mode.

	Select stereo sound.
	Select monaural sound.
I	Select bilingual I (sub I).
II	Select bilingual II (sub II).

This function is not available in video mode.
To operate this function with a menu:

✳ (MENU) ➔ (SOUND menu) ➔ (STEREO / I-II)

MaxxBass

You can enjoy an enhanced bass sound which cannot be reproduced by normal speakers.
Select MaxxBass in SOUND menu, then choose the desired setting.

✳ (MENU) ➔ (SOUND menu) ➔ (MaxxBass)

OFF	MaxxBass is turned off.
HIGH	MaxxBass effect is high.
LOW	MaxxBass effect is low.

This function is not available when SOUND MODE is set to SOUND TURBO.
"MaxxBass" is a registered trademark of Waves Audio Ltd. in the USA, Japan and other countries.

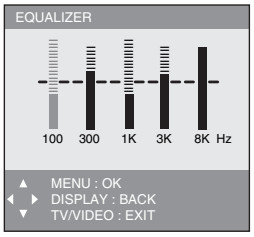
EQUALIZER

You can adjust the sound level of each frequencies when selecting USER mode in SOUND MODE.

1 Select USER in SOUND MODE under SOUND menu.
✳ (MENU) ➔ (SOUND menu) ➔ (SOUND MODE) ➔ (USER)

2 Select EQUALIZER in SOUND menu.
✳ (MENU) ➔ (SOUND menu) ➔ (EQUALIZER)

The following display appears.



3 Select and adjust the desired frequencies.

4 Press the MENU/OK button to exit the menu.

Adjust high frequency will affect higher pitch sound and vice versa.
When you select VIDEO-2, you cannot adjust EQUALIZER.

AI VOLUME

You can adjust the volume of all the channels and video inputs to the same level automatically depends on the strength of signal of the sources.
Select AI VOLUME in SOUND menu, then choose ON or OFF.

✳ (MENU) ➔ (SOUND menu) ➔ (AI VOLUME)

✳ About the basic operations of the menu, please see the "How to operate menus and menus locations" on page 5.

DVD Menu

AUTO SIGNAL DETECT

When the DVD input signal is detected, the input mode will be changed to VIDEO-2 automatically. And when the DVD input signal is not detected, the input mode will be changed to RF previous input mode.

Select AUTO SIGNAL DETECT in DVD MENU under FEATURES menu then choose ON or OFF (Factory setting is ON).

✳(MENU) ➔ (FEATURES menu) ➔ (DVD MENU) ➔ (AUTO SIGNAL DETECT)

Press the “POWER ON” button on the DVD players or VCRs (follow by the “PLAY” button for VCRs) so that the signal can be detected.

DVD PICTURE MODE

You can enhance the picture quality of the DVD or VIDEO-2.

Select DVD PICTURE MODE in DVD MENU under FEATURES menu, then choose the desired setting.

✳(MENU) ➔ (FEATURES menu) ➔ (DVD MENU) ➔ (DVD PICTURE MODE)

OFF	Cancel the function.
CLEAR-1	Select when the disc is with lots of noise (To soften the picture).
CLEAR-2	Select when the disc is with less noise (To sharpen the picture).

DVD THEATER STATUS

You can enjoy an enhanced picture quality for movie playback in a dark room, like watching a movie in the theater.

Select DVD THEATER STATUS in DVD MENU under FEATURES menu, then choose ON or OFF.

✳(MENU) ➔ (FEATURES menu) ➔ (DVD MENU) ➔ (DVD THEATER STATUS)

ON	Enjoy movie playback with suitable colour temperature, sharp subtitles and improved gradation for black, like in a theater.
OFF	Cancel the function.

When you set DVD THEATER STATUS to ON, PICTURE MODE, WHITE BALANCE and AI ECO SENSOR / ECO MODE functions are not available.

DVD SOUND MODE

You can choose different sound setting for viewing different types of DVD content.

Select DVD SOUND MODE in DVD MENU under FEATURES menu, then choose the desired setting.

✳(MENU) ➔ (FEATURES menu) ➔ (DVD MENU) ➔ (DVD SOUND MODE)

MUSIC	Select when watching a music concert.
USER	Select if you want to adjust the sound setting to your preference.
DRAMA	Select when watching a drama movie.
THEATER	Select when watching an action movie.

✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

Customized setting

VNR

You can reduce the picture noise.
Select VNR in PICTURE menu, then choose a setting of VNR function.

✳ (MENU) ➔ (PICTURE menu) ➔ (VNR)

OFF	VNR is turned off.
AUTO	Effect of VNR is automatically controlled.
MIN	Effect of VNR becomes minimum level.
MAX	Effect of VNR becomes maximum level.

If you select MAX, the picture becomes softer even if the original picture is sharp.
When you select VIDEO-2, you cannot adjust VNR function.

LANGUAGE

You can choose your desired on screen display language.
Select LANGUAGE in the INSTALL menu, then choose a language.

✳ (MENU) ➔ (INSTALL menu) ➔ (LANGUAGE)

CHILD LOCK

You can disable the front control buttons of the TV.
Select CHILD LOCK in the FEATURES menu, then choose ON or OFF.

✳ (MENU) ➔ (FEATURES menu) ➔ (CHILD LOCK)

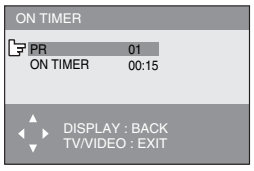
ON TIMER

You can set the TV to turn on automatically from standby mode at a set channel and time.

1 Select ON TIMER in the FEATURE menu.

✳ (MENU) ➔ (FEATURES menu) ➔ (ON TIMER)

The following display appears.



2 Choose the PR (channel) by pressing the ◄/► button.
External input, AV position and any un-preset channel cannot be chosen for PR.

3 Set the ON TIMER to your desired period of time by pressing the ◄/► button. ON TIMER starts. You can set the period of time to a maximum of 12 hours in 15-minute intervals.

To off the ON TIMER, set the ON TIMER to OFF.
Note : If TV is not in standby mode when ON TIMER is reach the setting time, this case is not available.

OFF TIMER

You can set the TV to turn off automatically to standby mode after a set time.
Press the OFF TIMER button to select a desired period of time.

You can set the period of time to a maximum of 120 minutes in 10 minute intervals.

To operate this function with a menu:

✳ (MENU) ➔ (FEATURES menu) ➔ (OFF TIMER)

When the remaining elapse time is one minute, “GOOD NIGHT!” appears on the screen.
You can display the OFF TIMER menu again to confirm or change the remaining time.

✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

Customized setting (continued)

VIDEO-2 SETTING

You can set the VIDEO-2 SETTING according to the video signal output from external devices connected to the VIDEO-2 terminal.
Select VIDEO-2 SETTING in INSTALL menu, then choose a setting (Factory setting is COMPONENT).

✳ (MENU) ➔ (INSTALL menu) ➔ (VIDEO-2 SETTING)

VIDEO	If a normal video signal (composite video signal) is input.
COMPONENT	If a component video signal ($Y/C_B/C_R$) is input.

You must choose a setting according to the signal that you input to VIDEO-2. (If you input the VIDEO Signal or VCR Signal to VIDEO-2, you must set VIDEO-2 SETTING to VIDEO.)

For connecting methods, see “Additional Preparation” on page 22.

BEEP

You can use the BEEP function to alert you during DVD AUTO SIGNAL DETECT, AI ECO SENSOR Detect, Stereo Detect, ON TIMER/OFF TIMER operations and when some buttons on the remote control are pressed.
Select BEEP in the INSTALL menu, then choose ON or OFF.

✳ (MENU) ➔ (INSTALL menu) ➔ (BEEP)

When the volume is level 0, then BEEP function is not available.

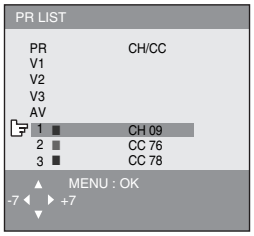
DISPLAY

You can display the programme number, video terminal number and PR list on the screen.
Press the DISPLAY button to select the desired mode:

ON → OFF → PR LIST

Choose a TV channel or a VIDEO terminal.

1. Press the DISPLAY button to display the PR LIST.
2. Select a programme number or video terminal by pressing the ▲/▼ button to move up/down on the programme number or press the ◄/► button to skip for each 7 programme numbers, then press MENU/OK button.



✳ About the basic operations of the menu, please see the “How to operate menus and menus locations” on page 5.

TV channel presetting

To register the TV channels automatically (AUTO PROGRAM)

You can register the TV channels into the TV's channel list automatically.

1 Display the INSTALL menu.

✳ (MENU) ➔ (INSTALL menu)

2 Choose AUTO PROGRAM, then press the MENU/OK button. AUTO PROGRAM function starts, and the channels received are registered in the channel list (PR LIST) automatically.

3 The EDIT menu appears.

To edit the channel list	Proceed to Step 3 of "To edit the channel list (PR LIST)" on page 20.
If a channel is not registered	Proceed to Step 3 of "To register the TV channels manually" on this page.
To exit the menu	Press the MENU/OK button.

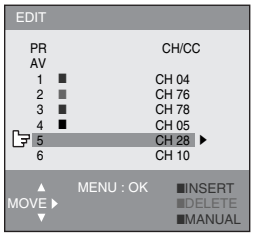
To register the TV channels manually (MANUAL in the EDIT menu)

You can register the TV channels into the TV's channel list manually.

1 Display the INSTALL menu.

✳ (MENU) ➔ (INSTALL menu)

2 Choose EDIT/MANUAL, then press the MENU/OK button.
EDIT menu appears.



3 Choose the channel which you want to register.

4 Press the blue button to activate the MANUAL function.
The sound system of the channel appears at the right of the CH/CC number.

5 Press the ► button to choose an appropriate sound system.
For details, see "SOUND SYSTEM" on page 14.

6 Press the green or red button to search for the TV channel.
Searching stops when a channel is found and displayed.

7 Repeat step 5 until your desired TV channel appears.

If the reception is poor	Press the blue or yellow button to fine tune the TV channel.
If noisy sound is heard	Press the ► button to choose an appropriate sound system.

8 Press the MENU/OK button to exit the menu.

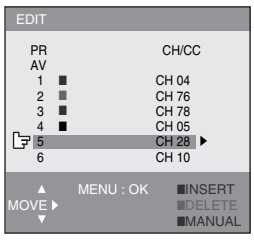
✳ About the basic operations of the menu, please see the "How to operate menus and menus locations" on page 5.

To edit the channel list (PR LIST) (MOVE and DELETE in the EDIT menu)

You can edit the TV channel list as you like.
Note: After this operation, other channel's PR numbers will be changed.

1 Display the INSTALL menu.
✳ (MENU) ➔ (INSTALL menu)

2 Choose EDIT/MANUAL, then press the MENU/OK button.
EDIT menu appears.



3 Choose the channel which you want to change its PR number, or delete.

4 Do the following action:

To change the PR number (MOVE)	Press the ► button. Then move it to the new PR number you want to use for the channel by pressing the ▲/▼ button. Finally press the ◄ button.
To delete the channel (DELETE)	Press the yellow button.

5 Press the MENU/OK button to exit the menu.

To add in the new channel (INSERT in the EDIT menu)

You can add in new channels in the TV channel list as you like.
You need to find the "CH/CC" number for the TV channel. Find the "CH/CC" number corresponding to the channel number of the TV channel from "CH/CC number list" on page 21.

1 Display the INSTALL menu.
✳ (MENU) ➔ (INSTALL menu)

2 Choose EDIT/MANUAL, then press the MENU/OK button.
EDIT menu appears.

3 Choose the PR number for which you will register a new TV channel. When you add a new TV channel of NTSC-M system, press the SOUND SYSTEM button to change the sound system to M. Then proceed to the next step.

4 Press the green button, then press ► button to choose "CC" or "CH".

5 Press the number button to enter the CH/CC number for the TV channel you wish to add.
The TV starts to search the TV channel, and the picture of the TV channel appears. If the TV finds no TV channel, a noisy picture appears.

When a TV channel has already been registered in PR99, using the INSERT function deletes that TV channel.

✳ About the basic operations of the menu, please see the "How to operate menus and menus locations" on page 5.

TV channel presetting (continued)

CH/CC number

When you want to use the INSERT function on page 20, find the CH/CC number corresponding to the channel number of the TV channel from this table.

Channel No.	Country
US	United States, Philippines, etc..
CCIR	Middle East, Southeast Asia, etc..
OIRT	Eastern Europe, Russia, Vietnam, etc..
AUSTRALIA	Australia, etc..

Channel

CH	US	CCIR	OIRT	AUSTRALIA
CH 02	US-2	E2	R1	AU-0
CH 03	US-3	E3		AU-1
CH 04	US-4	E4	R2	AU-2
CH 05	US-5	E5	R6	AU-6
CH 06	US-6	E6	R7	AU-7
CH 07	US-7	E7	R8	AU-8
CH 08	US-8	E8	R9	AU-9
CH 09	US-9	E9		
CH 10	US-10	E10	R10	AU-10
CH 11	US-11	E11	R11	AU-11
CH 12	US-12	E12	R12	
CH 13	US-13			
CH 14	US-14, W+29			
CH 15	US-15, W+30			
CH 16	US-16, W+31			
CH 17	US-17, W+32			
CH 18	US-18, W+33			
CH 19	US-19, W+34			
CH 20	US-20, W+35			
CH 21	US-21, W+36	E21		
CH 22	US-22, W+37	E22		
CH 23	US-23, W+38	E23		
CH 24	US-24, W+39	E24		
CH 25	US-25, W+40	E25		
CH 26	US-26, W+41	E26		
CH 27	US-27, W+42	E27		
CH 28	US-28, W+43	E28		AU-28
CH 29	US-29, W+44	E29		AU-29
CH 30	US-30, W+45	E30		AU-30
CH 31	US-31, W+46	E31		AU-31/AU-32
CH 32	US-32, W+47	E32		AU-33
CH 33	US-33, W+48	E33		AU-34
CH 34	US-34, W+49	E34		AU-35
CH 35	US-35, W+50	E35		AU-36
CH 36	US-36, W+51	E36		AU-37
CH 37	US-37, W+52	E37		AU-38
CH 38	US-38, W+53	E38		AU-39/AU-40
CH 39	US-39, W+54	E39		AU-41
CH 40	US-40, W+55	E40		AU-42
CH 41	US-41, W+56	E41		AU-43
CH 42	US-42, W+57	E42		AU-44
CH 43	US-43, W+58	E43		AU-45
CH 44	US-44, W+59	E44		AU-46
CH 45	US-45, W+60	E45		AU-47/AU-48
CH 46	US-46, W+61	E46		AU-49
CH 47	US-47, W+62	E47		AU-50
CH 48	US-48, W+63	E48		AU-51
CH 49	US-49, W+64	E49		AU-52
CH 50	US-50, W+65	E50		AU-53
CH 51	US-51, W+66	E51		AU-54
CH 52	US-52, W+67	E52		AU-55/AU-56
CH 53	US-53, W+68	E53		AU-57
CH 54	US-54, W+69	E54		AU-58
CH 55	US-55, W+70	E55		AU-59
CH 56	US-56, W+71	E56		AU-60
CH 57	US-57, W+72	E57		AU-61
CH 58	US-58, W+73	E58		AU-62
CH 59	US-59, W+74	E59		AU-63/AU-64
CH 60	US-60, W+75	E60		AU-65
CH 61	US-61, W+76	E61		AU-66
CH 62	US-62, W+77	E62		AU-67
CH 63	US-63, W+78	E63		AU-68
CH 64	US-64, W+79	E64		AU-69
CH 65	US-65, W+80	E65		
CH 66	US-66, W+81	E66		
CH 67	US-67, W+82	E67		
CH 68	US-68, W+83	E68		
CH 69	US-69, W+84	E69		

CC	US	CCIR	OIRT	AUSTRALIA
CC 01		S-1		AU-5
CC 02		S-2		
CC 03		S-3		
CC 04		S-4		
CC 05		S-5		
CC 06		S-6		AU-5A
CC 07		S-7		
CC 08		S-8		
CC 09		S-9		
CC 10		S-10		
CC 11		S-11		
CC 12		S-12		
CC 13		S-13		
CC 14	A	S-14		
CC 15	B	S-15		
CC 16	C	S-16		
CC 17	D	S-17		
CC 18	E	S-18		
CC 19	F	S-19		
CC 20	G	S-20		
CC 21	H	S-21		
CC 22	I	S-22		
CC 23	J	S-23		
CC 24	K	S-24		
CC 25	L	S-25		
CC 26	M	S-26		
CC 27	N	S-27		
CC 28	O	S-28		
CC 29	P	S-29		
CC 30	Q	S-30		
CC 31	R	S-31		
CC 32	S	S-32		
CC 33	T	S-33		
CC 34	U	S-34		
CC 35	V	S-35		
CC 36	W	S-36		
CC 37	W+1	S-37		
CC 38	W+2	S-38		
CC 39	W+3	S-39		
CC 40	W+4	S-40		
CC 41	W+5	S-41		
CC 42	W+6			
CC 43	W+7			
CC 44	W+8			
CC 45	W+9			
CC 46	W+10			
CC 47	W+11			
CC 48	W+12			
CC 49	W+13			
CC 50	W+14			
CC 51	W+15			
CC 52	W+16			
CC 53	W+17			
CC 54	W+18			
CC 55	W+19			
CC 56	W+20			
CC 57	W+21			
CC 58	W+22			
CC 59	W+23			
CC 60	W+24			
CC 61	W+25			
CC 62	W+26			
CC 63	W+27			
CC 64	W+28			
CC 75		X		
CC 76		Y	R3	
CC 77		Z	R4	AU-3
CC 78		Z+1	R5	
CC 79		Z+2		AU-4
CC 95	A-5			
CC 96	A-4			
CC 97	A-3			
CC 98	A-2			
CC 99	A-1			

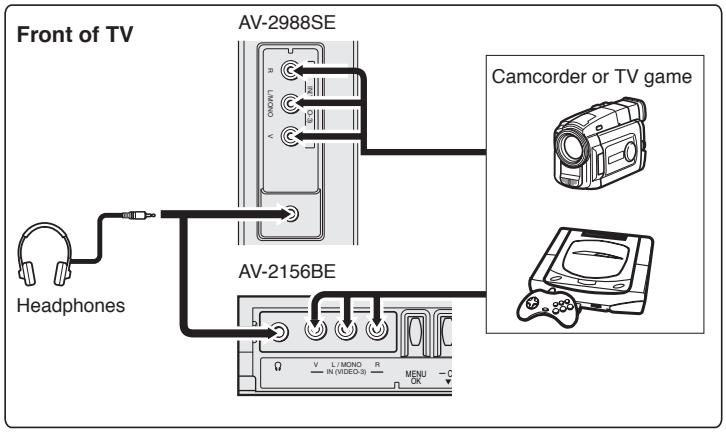
Additional preparation

The illustrations shown in this section are for AV-2156BE and AV-2988SE, which are used for explanation purpose. Your TV may not look exactly the same as illustrated.

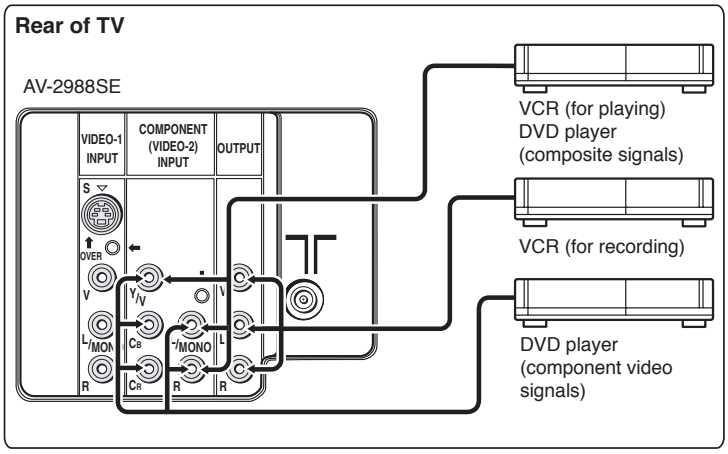
Before connecting

- Read the manuals provided with the devices for the proper connection.
- Turn off all the devices including the TV.
- Note that connecting cables are not supplied.

Connecting to front video input terminals



Connecting to rear component/video input terminals and output terminals



When connecting to COMPONENT (VIDEO-2) input, depending on the connection, choose the appropriate video input using the menu (see “VIDEO-2 SETTING” on page 18)

Troubleshooting

If a problem occurs when you are using the TV, check the below troubleshooting guide before calling for repair.

• No picture, no sound	• Deactivate the BLUE BACK function if it is turned on. • Choose the appropriate sound system. Refer to "SOUND SYSTEM" on page 14.
• Snowy picture	• Check the aerial cable and its connection with the TV.
• Stripes appear on the picture	• Interference occurs caused by other devices such as an amplifier, personal computer, or a hair drier. Move such devices away from your TV.
• Double-pictures (ghosting) occur	• Interference occurs caused by signal reflecting from mountains or building. Try to adjust the aerial's direction or use a better directionality antenna.
• Poor picture	• Choose the appropriate colour system. Refer to "COLOUR SYSTEM" on page 9. • Adjust the COLOUR or BRIGHT setting. Refer to "PICTURE SETTING" on page 10.
• White and bright still image look as if it were coloured	• Inevitable phenomenon due to the nature of the picture tube. This is not a malfunction.
• Top of the image from software products or video tape is distorted	• This is due to the condition of the video signal whereby the image was not recorded properly. This is not a malfunction.
• Poor sound	• Adjust the sound frequency properly. Refer to "EQUALIZER" on page 15.
• Stereo or bilingual sound is unclear	• TV channel reception is poor. Change the stereo/ bilingual mode to mono sound (see page 15).
• Cannot operate the remote control	• The batteries may be exhausted. Replace with new batteries (see page 7). • Ensure that you are operating the remote control at less than seven meters from the front of your TV.
• Cannot operate the menus	• Press TV/VIDEO button to return to TV mode and try operating the menus.
• Cannot operate the front control buttons	• Deactivate the CHILD LOCK function if it is turned on (see page 17).
• Colour patches appear at the corner of the screen	• This may due to the magnetized device such as a speaker near to your TV. Keep the device apart from your TV. Alternately, you can also use the magnetic-shielded speaker.
• Picture is tilted	• This may due to the earth magnetism. Refer to "PICTURE TILT" on page 11 to correct the tilt.
• Image takes a short period to be displayed	• Image required time to stabilize before display. This is not a malfunction.
• TV may emit crackling sound	• This is due to a sudden change in temperature and it is not a malfunction. If the crackling sound is too frequent, request your service technician for inspection.
• Feel a slight electric shock when touching the TV screen	• This is due to the static electricity of the picture tube and it will not harm the human body. This is not a malfunction.
• The Auto Signal Detect function does not work	• Please check that the AUTO SIGNAL DETECT function is on or off. • Turn the VCR or DVD player off, wait a while, then turn it on again. • Inspect the video cable connection on VIDEO-2 that they are connected properly.
• Suddenly, a channel or input was changed to VIDEO-2 inputs.	• Some VCRs and DVD players can trigger Auto Signal Detect even after you choose a different input. • Please turn off the AUTO SIGNAL DETECT function.
• "PLEASE DISCONNECT VIDEO-1 CABLE!" appears on the screen.	• Please disconnect either S-VIDEO cable or video input cable from Video-1 input.

Specifications

TV RF systems
B, G, I, D, K, M

Colour systems
PAL, SECAM, NTSC 3.58 MHz, NTSC 4.43 MHz

Receiving channels
VHF low channel (VL), VHF high channel (VH), UHF channel (U)
Receives cable channels in mid band, super band and hyper band.

Power requirements

For AV-25, AV-29 series:	AC 220 to 240 V, 50 Hz / 60 Hz
For AV-21 series:	AC 110 to 240 V, 50 Hz / 60 Hz

External input / output

VIDEO-1:	S-video input, VIDEO input, AUDIO L/R input
VIDEO-2/COMPONENT:	VIDEO input, AUDIO L/R input, COMPONENT VIDEO ($Y/C_B/C_R$) input
VIDEO-3:	VIDEO input, AUDIO L/R input
OUTPUT:	VIDEO output, AUDIO L/R output
Headphone jack:	Stereo mini jack (3.5 mm diameter)

****Sound-multiplex systems**
A2 (B/G) or NICAM (B/G, I, D/K)

****Teletext system**
FLOF (Fastext), WST (World Standard Text)

****Language displayed by teletext**
Please see the table in the description “TEXT LANGUAGE” on page 13.

Depends on the models, STEREO/I-II** function for the Sound-multiplex systems or Teletext function may not be available. Please confirm with the chart on page 3.

Design and specifications subject to change without notice.

JVC

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PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied.
- P.W. BOARD Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
CR	Carbon Resistor	C CAP.	Ceramic Capacitor
FR	Fusible Resistor	E CAP.	Electrolytic Capacitor
PR	Plate Resistor	M CAP.	Mylar Capacitor
VR	Variable Resistor	CH CAP.	Chip Capacitor
HV R	High Voltage Resistor	HV CAP.	High Voltage Capacitor
MF R	Metal Film Resistor	MF CAP.	Metalized Film Capacitor
MG R	Metal Glazed Resistor	MM CAP.	Metalized Mylar Capacitor
MP R	Metal Plate Resistor	MP CAP.	Metalized Polystyrol Capacitor
OM R	Metal Oxide Film Resistor	PP CAP.	Polypropylene Capacitor
CMF R	Coating Metal Film Resistor	PS CAP.	Polystyrol Capacitor
UNF R	Non-Flammable Resistor	TF CAP.	Thin Film Capacitor
CH V R	Chip Variable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH MG R	Chip Metal Glazed Resistor	TAN. CAP.	Tantalum Capacitor
COMP. R	Composition Resistor	CH C CAP.	Chip Ceramic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
		CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

RESISTORS									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% -10%	+50% -10%	+80% -20%	+100% -0%

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PACKING 3-9
PACKING PARTS LIST 3-9

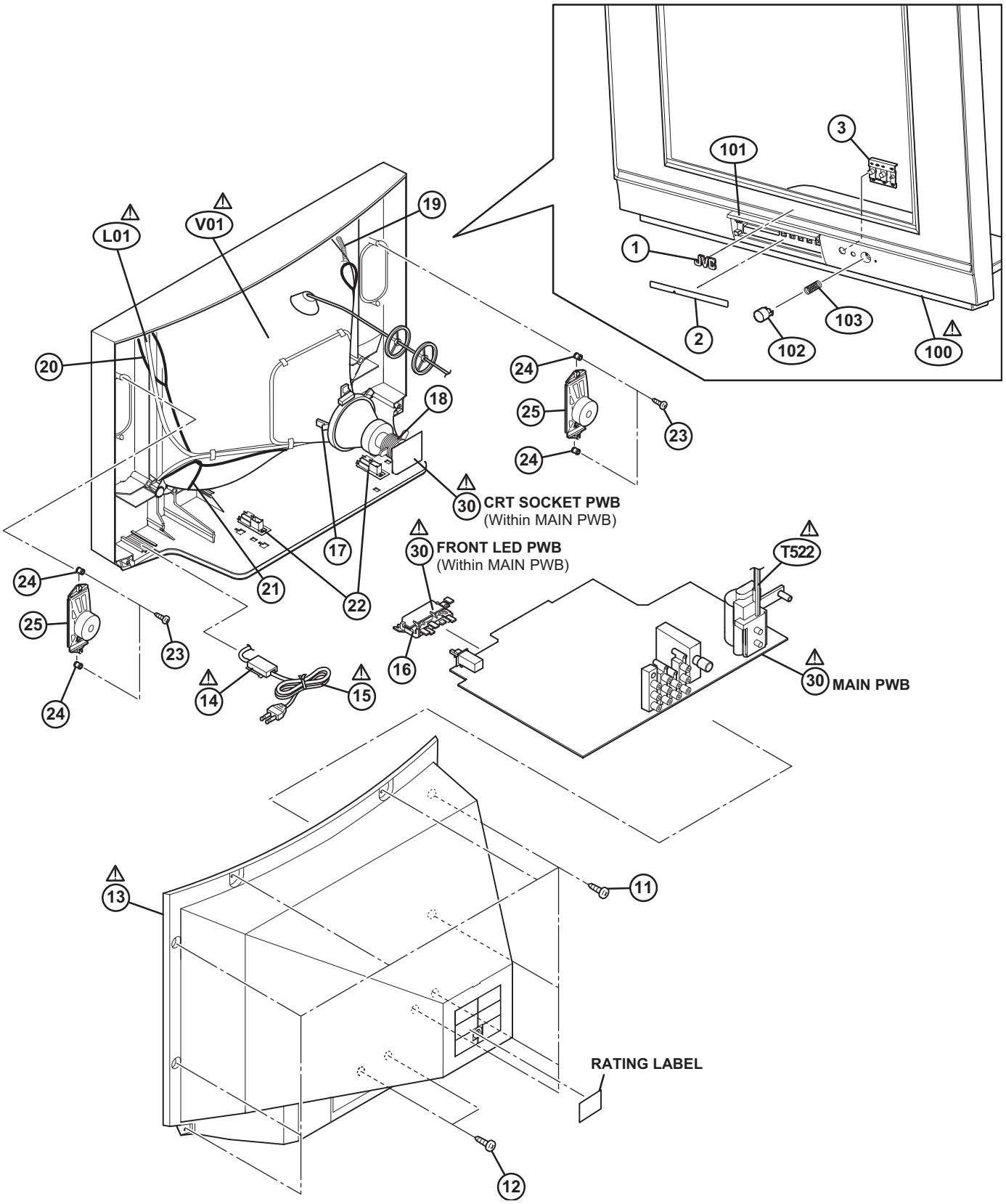
USING P.W. BOARD & REMOTE CONTROL UNIT

P.W.B ASS'Y	AV-2956BE
MAIN P.W.B	SCW-1957A-H2
REMOTE CONTROL UNIT	RM-C1286-1H

EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
⚠	V01	A68MAU086X70	PICTURE TUBE(ITC)	Inc.DEF YOKE	
⚠	L01	QQW0200-001	DEG COIL		
⚠	T522	QQH0202-001	FB TRANSF		
	1	GG30163-001A-H	JVC MARK		
	2	GG30150-001A-H	OPERATION SHEET		
	3	GG30149-001A-H	LED LENS		
	11	QYSBSFG4016ZA	TAP SCREW	M4 x 16mm(x9)	
	12	QYSBSF3010ZA	TAP SCREW	M3 x 10mm(x2)	
⚠	13	GG10436-001A-H	REAR COVER		
⚠	14	CM47005-A01-H	POWER CORD CLAMP		
⚠	15	QMPR340-165-K2	POWER CORD	1.65m BLACK	
	16	GG30119-001B-H	SUB PCB HOLDER		
	17	QAL0627-001	DY WEDGE	(x4)	
	18	QAL0610-001	PC MAGNET		
	19	A48457-3-H	SPRING		
	20	WJY0018-001A-E	BRAIDED ASS'Y		
	21	WJY0013-003A-E	BRAIDED ASS'Y	(x2)	
	22	GG30151-001A-H	CHASSIS RAIL	(x2)	
	23	GG40046-001A-H	TAP SCREW	(x4)	
	24	GG40056-001A-H	SPACER	(x4)	
	25	QAS0483-002	SPEAKER	(x2) SP01,SP02	
⚠	30	SCW-1957A-H2	MAIN PWB		
⚠	100	GG10434-001B-H	FRONT CABINET ASS'Y	Inc.101,102,103	
	101	GG20140-001B-H	DOOR		
	102	GG30158-001A-H	POWER KNOB		
	103	CM35235-003-H	SPRING		

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN P.W. BOARD ASS'Y (SCW-1957A-H2)

⚠Ref No.	Part No.	Part Name	Description	Local
IC201	STK396-110A	IC		
IC351	TDA6107AJF/N1	IC		
IC401	LA78041	IC		
IC481	LA6515	IC		
IC601	AN5277	IC		
IC701	TDA12021-ERC3-F	IC(MCU)	(SERVICE)	
IC702	ATE16-29BS26	IC	(SERVICE)	
IC801	GP1UE281QKVF	IR DETECT UNIT		
IC921	STR-W6556A-F5	IC		
IC951	SE135N	IC		
IC972	PQ033RDA1SSH	IC		
IC973	PQ120RDA1SZ	IC		
IC975	PQ050RDA1SZ	IC		
Q101	2SC5397/CD/-T	TRANSISTOR		
Q102	UN2212-X	DIGI TRANSISTOR		
Q103	UN2212-X	DIGI TRANSISTOR		
Q341	2SA1530A/QR/-X	TRANSISTOR		
Q341	or 2SA812A/5-6/-X	TRANSISTOR		
Q421	2SC3928A/QR/-X	TRANSISTOR		
Q421	or 2SC1623A/5-6/-X	TRANSISTOR		
Q422	2SC3928A/QR/-X	TRANSISTOR		
Q422	or 2SC1623A/5-6/-X	TRANSISTOR		
Q461	RDN050N20	POWER MOS FET		
Q481	2SC3928A/QR/-X	TRANSISTOR		
Q481	or 2SC1623A/5-6/-X	TRANSISTOR		
Q482	2SA1530A/QR/-X	TRANSISTOR		
Q482	or 2SA812A/5-6/-X	TRANSISTOR		
Q483	2SA562TM/Y/-T	TRANSISTOR		
Q484	2SA1530A/QR/-X	TRANSISTOR		
Q484	or 2SA812A/5-6/-X	TRANSISTOR		
Q521	BSN304-T	TRANSISTOR		
⚠Q522	TT2202-YD	POW TRANSISTOR		
Q571	2SA1208/ST/Z1-T	TRANSISTOR		
Q572	UN2212-X	DIGI TRANSISTOR		
Q601	2SA1530A/QR/-X	TRANSISTOR		
Q601	or 2SA812A/5-6/-X	TRANSISTOR		
Q602	2SA1530A/QR/-X	TRANSISTOR		
Q602	or 2SA812A/5-6/-X	TRANSISTOR		
Q603	UN2226-X	DIGI TRANSISTOR		
Q605	UN2226-X	DIGI TRANSISTOR		
Q607	2SC3928A/QR/-X	TRANSISTOR		
Q607	or 2SC1623A/5-6/-X	TRANSISTOR		
Q608	2SC3928A/QR/-X	TRANSISTOR		
Q608	or 2SC1623A/5-6/-X	TRANSISTOR		
Q609	UN2226-X	DIGI TRANSISTOR		
Q611	UN2226-X	DIGI TRANSISTOR		
Q612	2SC3928A/QR/-X	TRANSISTOR		
Q612	or 2SC1623A/5-6/-X	TRANSISTOR		
Q702	2SC3928A/QR/-X	TRANSISTOR		
Q702	or 2SC1623A/5-6/-X	TRANSISTOR		
Q704	2SC3928A/QR/-X	TRANSISTOR		
Q704	or 2SC1623A/5-6/-X	TRANSISTOR		
Q705	SSM3K02F-X	MOS FET		
Q706	SSM3K02F-X	MOS FET		
Q707	2SC3928A/QR/-X	TRANSISTOR		
Q707	or 2SC1623A/5-6/-X	TRANSISTOR		
Q708	2SA1530A/QR/-X	TRANSISTOR		
Q708	or 2SA812A/5-6/-X	TRANSISTOR		
Q791	2SC3928A/QR/-X	TRANSISTOR		
Q791	or 2SC1623A/5-6/-X	TRANSISTOR		
Q801	KTA1267/YG/-T	TRANSISTOR		
Q803	UN2226-X	DIGI TRANSISTOR		
Q804	UN2226-X	DIGI TRANSISTOR		
Q805	2SA1530A/QR/-X	TRANSISTOR		
Q805	or 2SA812A/5-6/-X	TRANSISTOR		
Q921	2SC3852A	POW TRANSISTOR		
Q951	2SC3928A/QR/-X	TRANSISTOR		
Q951	or 2SC1623A/5-6/-X	TRANSISTOR		
Q952	2SC3928A/QR/-X	TRANSISTOR		
Q952	or 2SC1623A/5-6/-X	TRANSISTOR		
Q955	2SC3928A/QR/-X	TRANSISTOR		
Q955	or 2SC1623A/5-6/-X	TRANSISTOR		
Q957	2SC3928A/QR/-X	TRANSISTOR		
Q957	or 2SC1623A/5-6/-X	TRANSISTOR		
Q958	2SA1013/RO/-T	TRANSISTOR		
Q981	2SA562TM/Y/-T	TRANSISTOR		
Q982	2SC3928A/QR/-X	TRANSISTOR		
Q982	or 2SC1623A/5-6/-X	TRANSISTOR		
Q983	2SA562TM/Y/-T	TRANSISTOR		
Q984	2SC3928A/QR/-X	TRANSISTOR		
Q984	or 2SC1623A/5-6/-X	TRANSISTOR		

⚠Ref No.	Part No.	Part Name	Description	Local
D101	1SS356-X	SI DIODE		
D102	1SS356-X	SI DIODE		
D201	FR105SGT-T2	SI DIODE		
D341	MA111-X	SI DIODE		
D342	MA111-X	SI DIODE		
D343	MA111-X	SI DIODE		
D345	MA111-X	SI DIODE		
D350	MA8075/H/-X	Z DIODE		
D354	FR105SGT-T2	SI DIODE		
D355	FR105SGT-T2	SI DIODE		
D356	FR105SGT-T2	SI DIODE		
D423	1N4003SG-T2	SI DIODE		
D424	1SR35-400A-T2	SI DIODE		
D481	MA111-X	SI DIODE		
D521	RH3G-F1	SI DIODE		
D522	RU4AM-LFM1	SI DIODE		
D523	FR105GT-T3	SI DIODE		
D524	MA8091/H/-X	Z DIODE		
D530	FR105GT-T3	SI DIODE		
D551	FR105GT-T3	SI DIODE		
D552	FR105GT-T3	SI DIODE		
D554	MA8051/L/-X	Z DIODE		
D571	MA8075/H/-X	Z DIODE		
D581	FR105GT-T3	SI DIODE		
D603	MA111-X	SI DIODE		
D607	MA111-X	SI DIODE		
D610	MA111-X	SI DIODE		
D701	MA111-X	SI DIODE		
D702	MA8091/H/-X	Z DIODE		
D703	MA8091/H/-X	Z DIODE		
D704	MA8091/H/-X	Z DIODE		
D706	MA8036-X	Z DIODE		
D707	MA111-X	SI DIODE		
D708	MA111-X	SI DIODE		
D709	MA111-X	SI DIODE		
D710	MA8091/H/-X	Z DIODE		
D711	MA111-X	SI DIODE		
D712	MA111-X	SI DIODE		
D713	MA8039/H/-X	Z DIODE		
D714	MA8030/H/-X	Z DIODE		
D715	MA111-X	SI DIODE		
D716	MA111-X	SI DIODE		
D717	MA111-X	SI DIODE		
D751	MA8091/H/-X	Z DIODE		
D753	MA8091/H/-X	Z DIODE		
D808	LH22440-T16	LED	POWER(RED)	
D810	MA8091/H/-X	Z DIODE		
D811	MA8091/H/-X	Z DIODE		
D812	MA8091/H/-X	Z DIODE		
D813	MA8091/H/-X	Z DIODE		
D814	MA8091/H/-X	Z DIODE		
D817	MA8091/H/-X	Z DIODE		
D901	GSIB460-S1	BRIDGE DIODE		
D921	FR105SGT-T2	SI DIODE		
D922	MTZJ36A-T2	Z DIODE		
D923	MTZJ75-T2	Z DIODE		
D924	MTZJ75-T2	Z DIODE		
D925	MTZJ9.1B-T2	Z DIODE		
D926	FR105GT-T3	SI DIODE		
D927	MTZJ36A-T2	Z DIODE		
D929	MA8330/M/-X	Z DIODE		
D930	MA111-X	SI DIODE		
D931	MA8200/M/-X	Z DIODE		
D932	MA111-X	SI DIODE		
D933	1SS133-T2	SI DIODE		
D951	RU4AM-LFM1	SI DIODE		
D952	RU3AM-LFC4	SI DIODE		
D953	FR105GT-T3	SI DIODE		
D954	FR105GT-T3	SI DIODE		
D955	FMX-G12S	SI DIODE		
D956	MA111-X	SI DIODE		
D957	MA8030/H/-X	Z DIODE		
D958	1SR35-400A-T2	SI DIODE		
D959	MA111-X	SI DIODE		
D962	MA8330/M/-X	Z DIODE		
D970	MA8082/M/-X	Z DIODE		
D971	MA111-X	SI DIODE		
D972	MA111-X	SI DIODE		
D973	MA111-X	SI DIODE		
D975	MA111-X	SI DIODE		
D977	1SR124-400A-T2	SI DIODE		
D981	UDZS2.0B-X	Z DIODE		
D982	UDZS2.0B-X	Z DIODE		

⚠Ref No.	Part No.	Part Name	Description	Local
⚠PC901	PS2581AL1/QW/	PHOTO COUPLER		
C001	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C002	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C003	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C004	QETN1CM-477Z	E CAPACITOR	470uF 16V M	
C005	NCB31HK-222X	C CAPACITOR	2200pF 50V K	
C006	QETN1HM-336Z	E CAPACITOR	33uF 50V M	
C007	NDC31HJ-560X	C CAPACITOR	56pF 50V J	
C008	NDC31HJ-560X	C CAPACITOR	56pF 50V J	
C101	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C102	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C103	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C104	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C105	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C106	NDC31HJ-180X	C CAPACITOR	18pF 50V J	
C107	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C108	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C109	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C110	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C111	QETN1CM-227Z	E CAPACITOR	220uF 16V M	
C201	QETN1CM-227Z	E CAPACITOR	220uF 16V M	
C202	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C204	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C205	QCB32HK-151Z	C CAPACITOR	150pF 500V K	
C206	QETN1VM-107Z	E CAPACITOR	100uF 35V M	
C207	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C208	QCB32HK-101Z	C CAPACITOR	100pF 500V K	
⚠C209	QCZ9054-103	C CAPACITOR	0.01uF	
C210	QETN2CM-106Z	E CAPACITOR	10uF 160V M	
C211	QETN2CM-106Z	E CAPACITOR	10uF 160V M	
C212	QETN1CM-106Z	E CAPACITOR	10uF 16V M	
C213	QCB32HK-103	C CAPACITOR	0.01uF 500V K	
C341	QETN1VM-227Z	E CAPACITOR	220uF 35V M	
C351	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C352	QETN2EM-106Z	E CAPACITOR	10uF 250V M	
C353	QFKC2EK-104Z	MM CAPACITOR	0.1uF 250V K	
C358	QCZ0364-222	C CAPACITOR	2200pF 2kV K	
C422	QCS32HJ-560Z	C CAPACITOR	56pF 500V J	
C423	NDC31HJ-102X	C CAPACITOR	1000pF 50V J	
C424	QFLC2AJ-683Z	M CAPACITOR	0.068uF 100V J	
C427	QETN1VM-108Z	E CAPACITOR	1000uF 35V M	
C428	QETN1VM-107Z	E CAPACITOR	100uF 35V M	
C430	QFLC2AJ-563Z	M CAPACITOR	0.056uF 100V J	
C431	QFVF1HJ-104Z	MF CAPACITOR	0.1uF 50V J	
C435	NCF21HZ-334X	C CAPACITOR	0.33uF 50V Z	
C436	NCF21HZ-334X	C CAPACITOR	0.33uF 50V Z	
C471	QETN1HM-226Z	E CAPACITOR	22uF 50V M	
C481	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C482	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C483	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C484	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C485	QETN1VM-476Z	E CAPACITOR	47uF 35V M	
C487	QETN1VM-226Z	E CAPACITOR	22uF 35V M	
C488	NDC31HJ-561X	C CAPACITOR	560pF 50V J	
C489	QETN1HM-226Z	E CAPACITOR	22uF 50V M	
C490	QETN1CM-477Z	E CAPACITOR	470uF 16V M	
C520	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
C521	QCB31HK-332Z	C CAPACITOR	3300pF 50V K	
C522	QFLC1HJ-223Z	M CAPACITOR	0.022uF 50V J	
C523	QETN1VM-476Z	E CAPACITOR	47uF 35V M	
⚠C524	QFZ0196-302	MPP CAPACITOR	3000pF 1.5kV H	
C525	QFZ0196-123	MPP CAPACITOR	0.012uF 1.5kV H	
C526	QFZ0196-302	MPP CAPACITOR	3000pF 1.5kV H	
C527	QFZ0197-224	MPP CAPACITOR	0.22uF 250V J	
C528	QFP32JJ-223	PP CAPACITOR	0.022uF 630V J	
C529	QENC2AM-225Z	BP E CAPACITOR	2.2uF 100V M	
C530	QCB32HK-561Z	C CAPACITOR	560pF 500V K	
C531	QEZ0195-475Z	BP E CAPACITOR	4.7uF 50V M	
C532	QETN2EM-106Z	E CAPACITOR	10uF 250V M	
C551	QCB32HK-561Z	C CAPACITOR	560pF 500V K	
C552	QCB32HK-561Z	C CAPACITOR	560pF 500V K	
C553	QETN1EM-108Z	E CAPACITOR	1000uF 25V M	
C554	QETN1EM-108Z	E CAPACITOR	1000uF 25V M	
C555	QFLC2AJ-103Z	M CAPACITOR	0.01uF 100V J	
C571	QETM2CM-227	E CAPACITOR	220uF 160V M	
C572	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C573	QETN1VM-476Z	E CAPACITOR	47uF 35V M	
C581	QFVF1HJ-104Z	MF CAPACITOR	0.1uF 50V J	
C582	QFZ0197-204	MPP CAPACITOR	0.2uF 250V J	
C601	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C602	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C603	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C604	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C605	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C606	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C607	QETN1CM-227Z	E CAPACITOR	220uF 16V M	
C608	QETN1CM-227Z	E CAPACITOR	220uF 16V M	
C609	QETN1HM-336Z	E CAPACITOR	33uF 50V M	
C610	QETN1CM-227Z	E CAPACITOR	220uF 16V M	
C613	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C615	QETN1EM-108Z	E CAPACITOR	1000uF 25V M	
C616	QETN1EM-108Z	E CAPACITOR	1000uF 25V M	
C656	QETN1HM-107Z	E CAPACITOR	100uF 50V M	
C661	QETN1HM-107Z	E CAPACITOR	100uF 50V M	
C662	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C701	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C702	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C703	QETN1AM-477Z	E CAPACITOR	470uF 10V M	
C704	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C705	NDC31HJ-7R0X	C CAPACITOR	7pF 50V J	
C706	NDC31HJ-7R0X	C CAPACITOR	7pF 50V J	
C707	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C708	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C709	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C710	NCB31HK-682X	C CAPACITOR	6800pF 50V K	
C711	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	
C712	QFVF1HJ-224Z	MF CAPACITOR	0.22uF 50V J	
C713	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C714	NCB31HK-223X	C CAPACITOR	0.022uF 50V K	
C715	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C716	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C717	QETN1HM-105Z	E CAPACITOR	1uF 50V M	
C718	QFZ0229-154Z	MF CAPACITOR	0.15uF 63V K	
C719	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C720	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C723	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C724	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C725	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C726	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C727	NCB31HK-332X	C CAPACITOR	3300pF 50V K	
C728	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C729	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	
C730	QETN1HM-226Z	E CAPACITOR	22uF 50V M	
C731	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C732	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	
C734	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C735	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C736	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C737	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C738	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C739	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C740	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C741	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C742	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C743	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C744	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C745	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C746	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C751	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C752	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C753	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C754	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C755	QETN1CM-227Z	E CAPACITOR	220uF 16V M	
C756	NCB31HK-104X	C CAPACITOR	0.1uF 50V K	
C757	NDC31HJ-561X	C CAPACITOR	560pF 50V J	
C758	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C760	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C761	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C762	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C766	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C767	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C768	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C769	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C770	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C771	QETN1HM-226Z	E CAPACITOR	22uF 50V M	
C772	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C773	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C775	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C776	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C777	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C778	QETN1VM-476Z	E CAPACITOR	47uF 35V M	
C779	QETN1HM-106Z	E CAPACITOR	10uF 50V M	
C780	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C781	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C782	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C783	QETN1HM-105Z	E CAPACITOR	1uF 50V M	
C784	QETN1HM-105Z	E CAPACITOR	1uF 50V M	
C785	NCB30JK-225X	C CAPACITOR	2.2uF 6.3V K	
C786	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C787	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C788	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C790	NDC31HJ-270X	C CAPACITOR	27pF 50V J	
C792	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	

⚠Ref No.	Part No.	Part Name	Description Local
C793	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C802	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C803	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C804	QETN1CM-477Z	E CAPACITOR	470uF 16V M
C807	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C808	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C821	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C822	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C823	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C824	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C825	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C826	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C827	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C828	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C829	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C830	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C831	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
⚠C901	QFZ9072-224	MM CAPACITOR	0.22uF AC250V K
⚠C902	QFZ9072-224	MM CAPACITOR	0.22uF AC250V K
⚠C903	QCZ9015-102Z	C CAPACITOR	1000pF AC250V Z
⚠C904	QCZ9015-102Z	C CAPACITOR	1000pF AC250V Z
⚠C905	QCZ9015-102Z	C CAPACITOR	1000pF AC250V Z
C906	QEZ0633-227	E CAPACITOR	220uF 450V M
⚠C910	QFZ9072-224	MM CAPACITOR	0.22uF AC250V K
C915	QCB32HK-392Z	C CAPACITOR	3900pF 500V K
C921	QCZ0364-102	C CAPACITOR	1000pF 2kV K
C922	NCB31CK-103X	C CAPACITOR	0.01uF 16V K
C923	NCB31HK-102X	C CAPACITOR	1000pF 50V K
C924	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C925	QETN2AM-226Z	E CAPACITOR	22uF 100V M
C926	QETN1HM-226Z	E CAPACITOR	22uF 50V M
C950	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C952	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C953	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C954	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C955	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C956	QEZ0203-227	E CAPACITOR	220uF 160V M
C957	QETN1AM-228Z	E CAPACITOR	2200uF 10V M
C958	QETN1EM-477Z	E CAPACITOR	470uF 25V M
C959	QETN1VM-227Z	E CAPACITOR	220uF 35V M
C960	QETM1VM-228	E CAPACITOR	2200uF 35V M
C962	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C963	QCZ0364-102	C CAPACITOR	1000pF 2kV K
C965	NCB31HK-102X	C CAPACITOR	1000pF 50V K
C967	QETN1VM-476Z	E CAPACITOR	47uF 35V M
C968	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C975	QETN1AM-228Z	E CAPACITOR	2200uF 10V M
C977	QETN1VM-476Z	E CAPACITOR	47uF 35V M
C980	QETN1VM-476Z	E CAPACITOR	47uF 35V M
⚠C991	QCZ9079-471	C CAPACITOR	470pF AC250V K
⚠C992	QCZ9079-471	C CAPACITOR	470pF AC250V K
⚠C993	QCZ9079-102	C CAPACITOR	1000pF AC250V M
C994	QETN1HM-335Z	E CAPACITOR	3.3uF 50V M
R001	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R002	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R003	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R004	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J
R005	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R101	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J
R102	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J
R103	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J
R104	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J
R105	NRSA63J-220X	MG RESISTOR	22Ω 1/16W J
R106	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R107	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R108	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R109	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R110	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R201	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J
R202	NRSA63J-680X	MG RESISTOR	68Ω 1/16W J
R204	QRL029J-331	OMF RESISTOR	330Ω 2W J
R205	QRL029J-471	OMF RESISTOR	470Ω 2W J
R206	QRZ9021-561	FUSI RESISTOR	560Ω 1W J
R344	NRSA63J-220X	MG RESISTOR	22Ω 1/16W J
R351	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R352	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R353	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R354	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R355	QRE121J-561Y	C RESISTOR	560Ω 1/2W J
R356	QRE121J-561Y	C RESISTOR	560Ω 1/2W J
R357	QRE121J-561Y	C RESISTOR	560Ω 1/2W J
R358	QRZ0107-152Z	C RESISTOR	1.5kΩ 1/2W K
R359	QRZ0107-152Z	C RESISTOR	1.5kΩ 1/2W K
R360	QRZ0107-152Z	C RESISTOR	1.5kΩ 1/2W K
R369	QRE121J-104Y	C RESISTOR	100kΩ 1/2W J
R411	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R412	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R421	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R426	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J
R427	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J
R430	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J
R432	QRX01GJ-2R2	MF RESISTOR	2.2Ω 1W J
R433	QRE121J-3R9Y	C RESISTOR	3.9Ω 1/2W J
R434	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J
R438	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J
R440	QRG01GJ-331	OMF RESISTOR	330Ω 1W J
R448	QRE121J-1R0Y	C RESISTOR	1Ω 1/2W J
R461	QRE121J-823Y	C RESISTOR	82kΩ 1/2W J
R462	QRL039J-330	OMF RESISTOR	33Ω 3W J
R471	NRSA63J-274X	MG RESISTOR	270kΩ 1/16W J
R472	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R473	QRE141J-683Y	C RESISTOR	68kΩ 1/4W J
R474	NRSA63J-224X	MG RESISTOR	220kΩ 1/16W J
R481	NRSA63J-124X	MG RESISTOR	120kΩ 1/16W J
R482	NRSA63J-683X	MG RESISTOR	68kΩ 1/16W J
R483	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J
R484	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R485	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J
R486	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R487	NRSA63J-154X	MG RESISTOR	150kΩ 1/16W J
R488	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R490	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R491	NRSA63J-683X	MG RESISTOR	68kΩ 1/16W J
R492	NRSA63J-152X	MG RESISTOR	1.5kΩ 1/16W J
R493	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J
R494	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R496	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R497	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R498	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J
R499	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J
R520	QRE141J-471Y	C RESISTOR	470Ω 1/4W J
R521	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R522	QRE121J-220Y	C RESISTOR	22Ω 1/2W J
R523	QRL029J-271	OMF RESISTOR	270Ω 2W J
R524	QRL039J-271	OMF RESISTOR	270Ω 3W J
R525	QRL039J-271	OMF RESISTOR	270Ω 3W J
R527	QRL039J-393	OMF RESISTOR	39kΩ 3W J
R528	QRE121J-471Y	C RESISTOR	470Ω 1/2W J
⚠R530	QRZ9017-270	FUSI RESISTOR	27Ω 1/4W J
⚠R533	QRZ9017-4R7	FUSI RESISTOR	4.7Ω 1/4W J
⚠R551	QRZ9021-1R0	FUSI RESISTOR	1Ω 1W J
⚠R552	QRZ9021-1R0	FUSI RESISTOR	1Ω 1W J
R554	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J
⚠R555	QRZ9022-R82	FUSI RESISTOR	0.82Ω 1W K
R569	QRZ0225-2R2	UNF RESISTOR	2.2Ω 7W K
R572	QRE141J-103Y	C RESISTOR	10kΩ 1/4W J
R573	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R574	QRE121J-183Y	C RESISTOR	18kΩ 1/2W J
R575	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R581	QRE121J-822Y	C RESISTOR	8.2kΩ 1/2W J
R582	QRE121J-124Y	C RESISTOR	120kΩ 1/2W J
R583	QRE121J-184Y	C RESISTOR	180kΩ 1/2W J
R601	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R602	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R604	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R606	QRE121J-2R2Y	C RESISTOR	2.2Ω 1/2W J
R607	QRE121J-2R2Y	C RESISTOR	2.2Ω 1/2W J
R609	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J
R610	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R611	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R612	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R614	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R618	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R620	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R621	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R622	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R623	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J
R624	NRSA63J-683X	MG RESISTOR	68kΩ 1/16W J
R630	QRE121J-271Y	C RESISTOR	270Ω 1/2W J
R631	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R632	QRE121J-271Y	C RESISTOR	270Ω 1/2W J
R633	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R634	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R636	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R637	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R639	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R640	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J
R649	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R701	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J
R702	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R703	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R704	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R705	NRSA63J-393X	MG RESISTOR	39kΩ 1/16W J

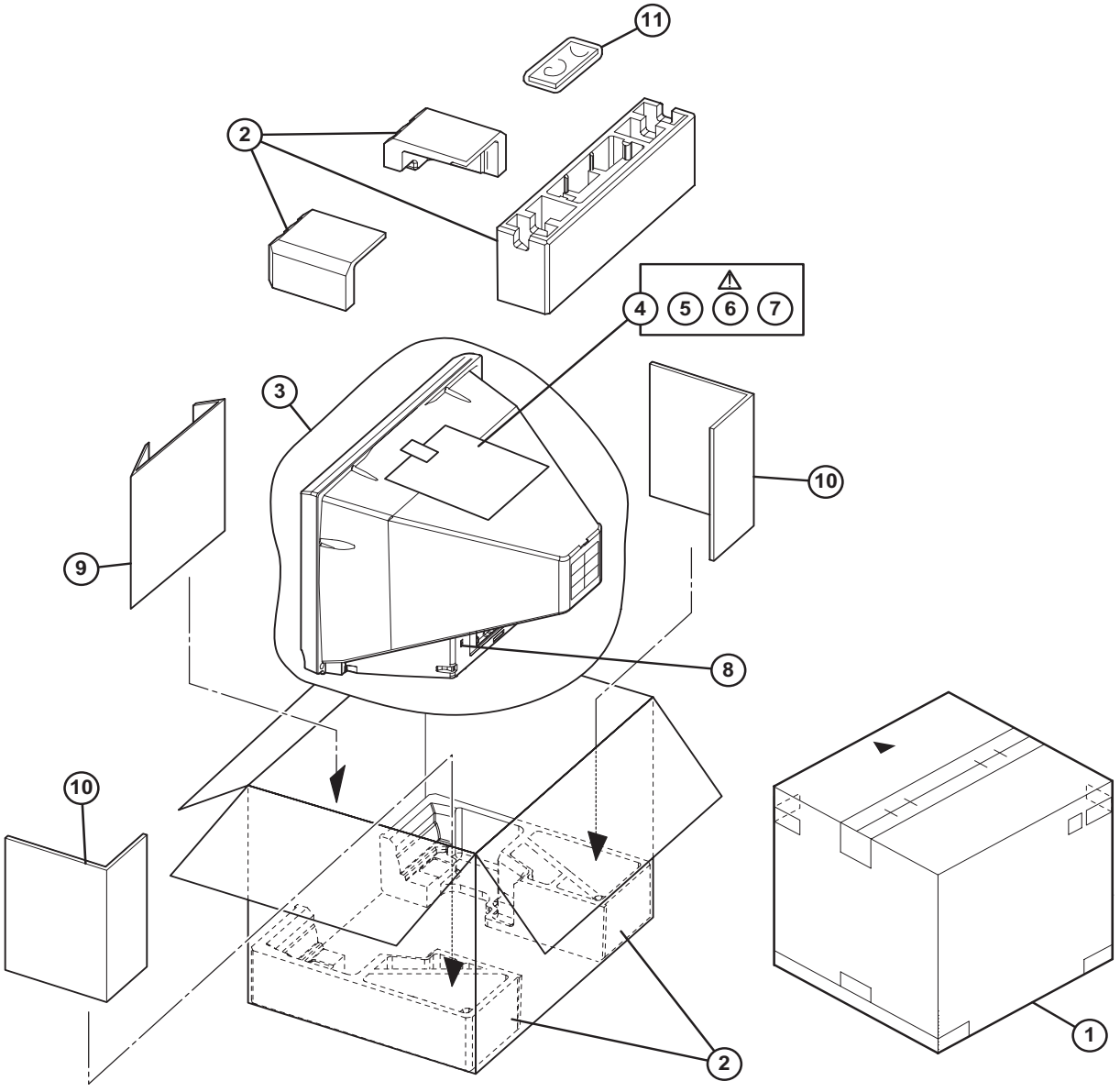
⚠Ref No.	Part No.	Part Name	Description Local
R706	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R707	NRSA63J-563X	MG RESISTOR	56kΩ 1/16W J
R708	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R709	QRE141J-105Y	C RESISTOR	1MΩ 1/4W J
R711	QRE141J-562Y	C RESISTOR	5.6kΩ 1/4W J
R712	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R713	QRE141J-562Y	C RESISTOR	5.6kΩ 1/4W J
R714	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R715	NRSA63J-391X	MG RESISTOR	390Ω 1/16W J
R716	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R717	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R718	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R719	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R720	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J
R721	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R722	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R723	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R724	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R725	NRSA63J-470X	MG RESISTOR	47Ω 1/16W J
R726	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J
R727	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R728	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R731	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J
R732	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R733	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R734	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R735	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R736	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R737	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R738	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R739	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R740	QRE141J-153Y	C RESISTOR	15kΩ 1/4W J
R741	QRE141J-221Y	C RESISTOR	220Ω 1/4W J
R742	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R743	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R744	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R745	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R746	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R747	QRE141J-101Y	C RESISTOR	100Ω 1/4W J
R748	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J
R749	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R750	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R751	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R752	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R753	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R754	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R755	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R756	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R757	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R758	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R759	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R760	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R761	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R762	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R763	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R764	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R765	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R768	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R769	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R770	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R771	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J
R772	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R773	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R774	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R775	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R776	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J
R777	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R779	QRE141J-101Y	C RESISTOR	100Ω 1/4W J
R780	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R781	QRE141J-101Y	C RESISTOR	100Ω 1/4W J
R782	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R783	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R784	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R785	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R786	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R787	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R789	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R790	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R792	QRE141J-330Y	C RESISTOR	33Ω 1/4W J
R793	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R794	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R795	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R796	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R797	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J
R801	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R804	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R805	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R806	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R807	QRE121J-101Y	C RESISTOR	100Ω 1/2W J
R809	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R810	NRSA63J-391X	MG RESISTOR	390Ω 1/16W J
R811	NRSA63J-823X	MG RESISTOR	82kΩ 1/16W J
R812	NRSA63J-391X	MG RESISTOR	390Ω 1/16W J
R813	NRSA63J-823X	MG RESISTOR	82kΩ 1/16W J
R814	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R815	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R816	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R818	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J
R819	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R820	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J
R821	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R822	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R824	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J
R825	QRE141J-470Y	C RESISTOR	47Ω 1/4W J
R901	QRF154K-4R7	UNF WW RESISTOR	4.7Ω 15W K
R902	QRL029J-683	OMF RESISTOR	68kΩ 2W J
⚠R910	QRZ0107-474Z	C RESISTOR	470kΩ 1/2W K
R921	QRL029J-473	OMF RESISTOR	47kΩ 2W J
R922	QRE141J-331Y	C RESISTOR	330Ω 1/4W J
R923	QRE141J-273Y	C RESISTOR	27kΩ 1/4W J
R924	QRA14CF-3302Y	CMF RESISTOR	33kΩ 1/4W F
R926	QRE141J-220Y	C RESISTOR	22Ω 1/4W J
R927	QRE121J-222Y	C RESISTOR	2.2kΩ 1/2W J
R928	QRE121J-103Y	C RESISTOR	10kΩ 1/2W J
R929	NRSA63J-220X	MG RESISTOR	22Ω 1/16W J
R951	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R952	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J
R953	QRE141J-103Y	C RESISTOR	10kΩ 1/4W J
R957	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J
R958	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J
R959	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J
R960	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J
R961	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R962	QRL029J-223	OMF RESISTOR	22kΩ 2W J
R963	QRE121J-332Y	C RESISTOR	3.3kΩ 1/2W J
R964	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J
R967	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J
R970	QRE141J-182Y	C RESISTOR	1.8kΩ 1/4W J
R975	QRE141J-122Y	C RESISTOR	1.2kΩ 1/4W J
R976	QRE141J-391Y	C RESISTOR	390Ω 1/4W J
R980	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J
R981	QRE121J-3R9Y	C RESISTOR	3.9Ω 1/2W J
R982	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J
R983	QRE121J-3R9Y	C RESISTOR	3.9Ω 1/2W J
R984	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J
R985	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R986	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
⚠R991	QRZ9046-825Z	C RESISTOR	8.2MΩ 1/2W K
L002	QQL244J-4R7Z	PEAKING COIL	4.7uH J
L003	QQL244J-4R7Z	PEAKING COIL	4.7uH J
L101	QQL244K-1R0Z	PEAKING COIL	1uH K
L401	QQL244K-820Z	PEAKING COIL	82uH K
L521	QQLZ036-821	COIL	820uH K
L522	QQR1243-001	LINEARITY COIL	
L530	QQL244K-220Z	PEAKING COIL	22uH K
L701	QQL231J-5R6Y	P COIL	5.6uH J
L702	QQL231J-5R6Y	P COIL	5.6uH J
L703	NQR0199-004X	FERRITE BEADS	
L706	NQR0199-004X	FERRITE BEADS	
L716	NQR0199-004X	FERRITE BEADS	
L718	NQR0199-004X	FERRITE BEADS	
L951	QQLZ026-480	COIL	48uH ±7%
⚠T521	QQR1229-001	DRIVE TRANSF	
⚠T921	QQS0267-001	SW TRANSF	
⚠CP650	ICP-N25-T	IC PROTECTOR	1.0A
⚠CP951	QMFZ052-2R0-E	FUSE	2A AC250V
⚠CP952	ICP-N38-T	IC PROTECTOR	1.5A
⚠CP953	ICP-N38-T	IC PROTECTOR	1.5A
⚠CP954	ICP-N38-T	IC PROTECTOR	1.5A
⚠CP955	ICP-N75-T	IC PROTECTOR	2.7A
⚠F901	QMF51E2-4R0-S	FUSE	4A AC250V
J801	QNZ0454-002	PIN JACK	VIDEO1/S-VIDEO IN
J802	QNN0349-002	PIN JACK	VIDEO2/COMP IN
J803	QNN0348-001	PIN JACK	VIDEO2/COMP IN
J804	QNN0349-001	PIN JACK	VIDEO OUT
J806	QNN0281-003	PIN JACK	VIDEO3 V IN
J807	QNN0281-002	PIN JACK	VIDEO3 L IN
J808	QNN0282-001	PIN JACK	VIDEO3 R IN
J809	QNS0155-001	3.5 JACK	HEADPHONE
K101	QQR1114-001Z	FERRITE BEADS	
K103	QQR0601-001Z	COIL	
K104	QQR1114-001Z	FERRITE BEADS	

⚠Ref No.	Part No.	Part Name	Description	Local
K201	QQR0582-001Z	FERRITE BEADS		
K921	QQR1114-001Z	FERRITE BEADS		
K951	QQR1114-001Z	FERRITE BEADS		
K952	QQR1113-001Z	FERRITE BEADS		
K953	QQR1113-001Z	FERRITE BEADS		
K954	QQR1113-001Z	FERRITE BEADS		
K955	QQR1113-001Z	FERRITE BEADS		
LC801	QQR1199-002	EMI FILTER		
LC802	QQR1199-002	EMI FILTER		
LC803	QQR1199-002	EMI FILTER		
LC804	QQR1199-002	EMI FILTER		
LC805	QQR1199-002	EMI FILTER		
⚠LF901	QQR1356-001	LINE FILTER		
⚠LF902	QQR1035-002	LINE FILTER		
⚠RY901	QSK0061-002	RELAY		
S801	QSW0619-003Z	PUSH SWITCH	MENU	
S802	QSW0619-003Z	PUSH SWITCH	CH-	
S803	QSW0619-003Z	PUSH SWITCH	CH+	
S804	QSW0619-003Z	PUSH SWITCH	VOL-	
S805	QSW0619-003Z	PUSH SWITCH	VOL+	
⚠S901	QSW0846-001	PUSH SWITCH	POWER	
SF101	QAX0872-001	SAW FILTER		
SF102	QAX0731-001	SAW FILTER		
⚠SK351	QNZ0536-002	CRT SOCKET		
⚠TH901	QAD0134-4R5	P THERMISTOR	4.5Ω	
TU001	QAU0466-001	TUNER		
⚠VA901	QAF0060-621	VARISTOR	620V	
X701	QAX0799-001Z	CRYSTAL	2457600MHz	
	GG30118-001A-H	LED HOLDER		

REMOTE CONTROL UNIT PARTS LIST (RM-C1286-1H)

⚠	Ref No.	Part No.	Part Name	Description	Local
		R25-8566	BATTERY COVER		

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
	1	GG10285-016B-H	PACKING CASE		
	2	GG10437-001B-H	CUSHION ASS'Y	5pcs in 1set	
	3	GG30097-004B-H	POLY BAG		
	4	GG30096-001B-H	POLY BAG		
	5	----------	BATTERY	AA/R6 1.5V(x2)	
⚠	6	GGT0120-001A-H	INST BOOK		
	7	----------	WARRANTY CARD	BT-54028-1H	
	8	GG40042-001A-H	CORD CLAMP R/C		
	9	GG20011-017A-H	SUPPORT PAD		
	10	GG20011-018A-H	SUPPORT PAD	(x2)	
	11	RM-C1286-1H	REMOCON UNIT		

JVC

SCHEMATIC DIAGRAMS

FLAT COLOUR TELEVISION

AV-2956BE

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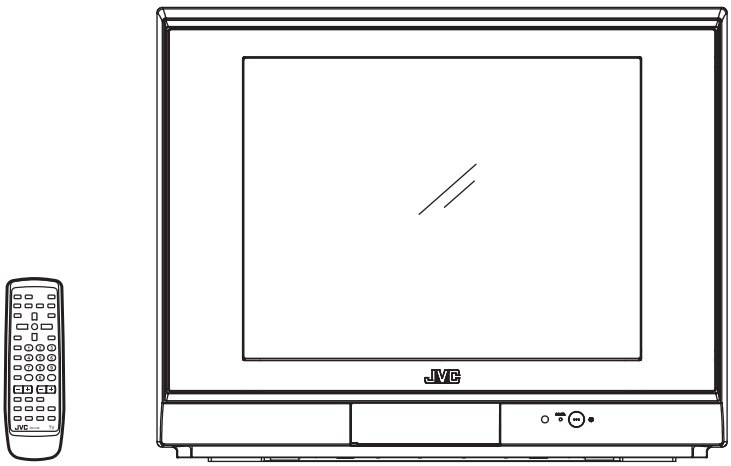

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2006/10

AV-2956BE

STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety ciritical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal	: Colour bar signal
(2)Setting positions of each knob/button and variable resistor	: Original setting position when shipped
(3)Internal resistance of tester	: DC 20kΩ/V
(4)Oscilloscope sweeping time	: H ⇒ 20μs / div
	: V ⇒ 5ms / div
	: Othters ⇒ Sweeping time is specified
(5)Voltage values	: All DC voltage values

∗ Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL [EXAMPLE]

● In the PW board : R209 → R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

● Resistance value

No unit	: [Ω]
K	: [kΩ]
M	: [MΩ]

● Rated allowable power

No indication	: 1/16 [W]
Others	: As specified

● Type

No indication	: Carbon resistor
OMR	: Oxide metal film resistor
MFR	: Metal film resistor
MPR	: Metal plate resistor
UNFR	: Uninflammable resistor
FR	: Fusible resistor

∗ Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

● Capacitance value

1 or higher	: [pF]
less than 1	: [μF]

● Withstand voltage

No indication	: DC50[V]
Others	: DC withstand voltage [V]
AC indicated	: AC withstand voltage [V]

∗ Electrolytic Capacitors

47/50[Example]: Capacitance value [μF]/withstand voltage[V]

● Type

No indication	: Ceramic capacitor
MM	: Metalized mylar capacitor
PP	: Polypropylene capacitor
MPP	: Metalized polypropylene capacitor
MF	: Metalized film capacitor
TF	: Thin film capacitor
BP	: Bipolar electrolytic capacitor
TAN	: Tantalum capacitor

(3)Coils

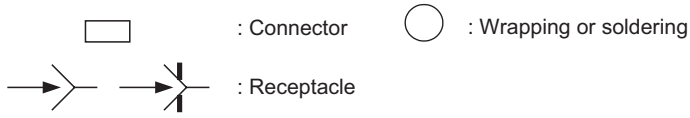
No unit	: [μH]
Others	: As specified

(4)Power Supply

∗ Respective voltage values are indicated

(5)Test point

(6)Connecting method



(7)Ground symbol

5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND and the ISOLATED(NEUTRAL) : (⏚) side GND. Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. if the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.

◆ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

NOTE

◆ **Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.**
When ordering parts, please use the numbers that appear in the Parts List.

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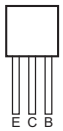
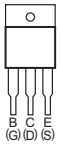
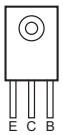
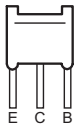
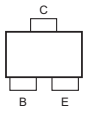
USING P.W. BOARD

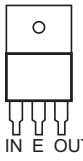
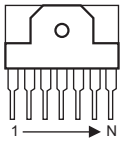
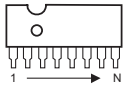
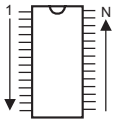
P.W.B ASS'Y name	AV-2956BE
MAIN P.W. BOARD	SCW-1957A-H2

SEMICONDUCTOR SHAPES

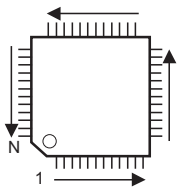
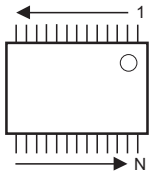
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

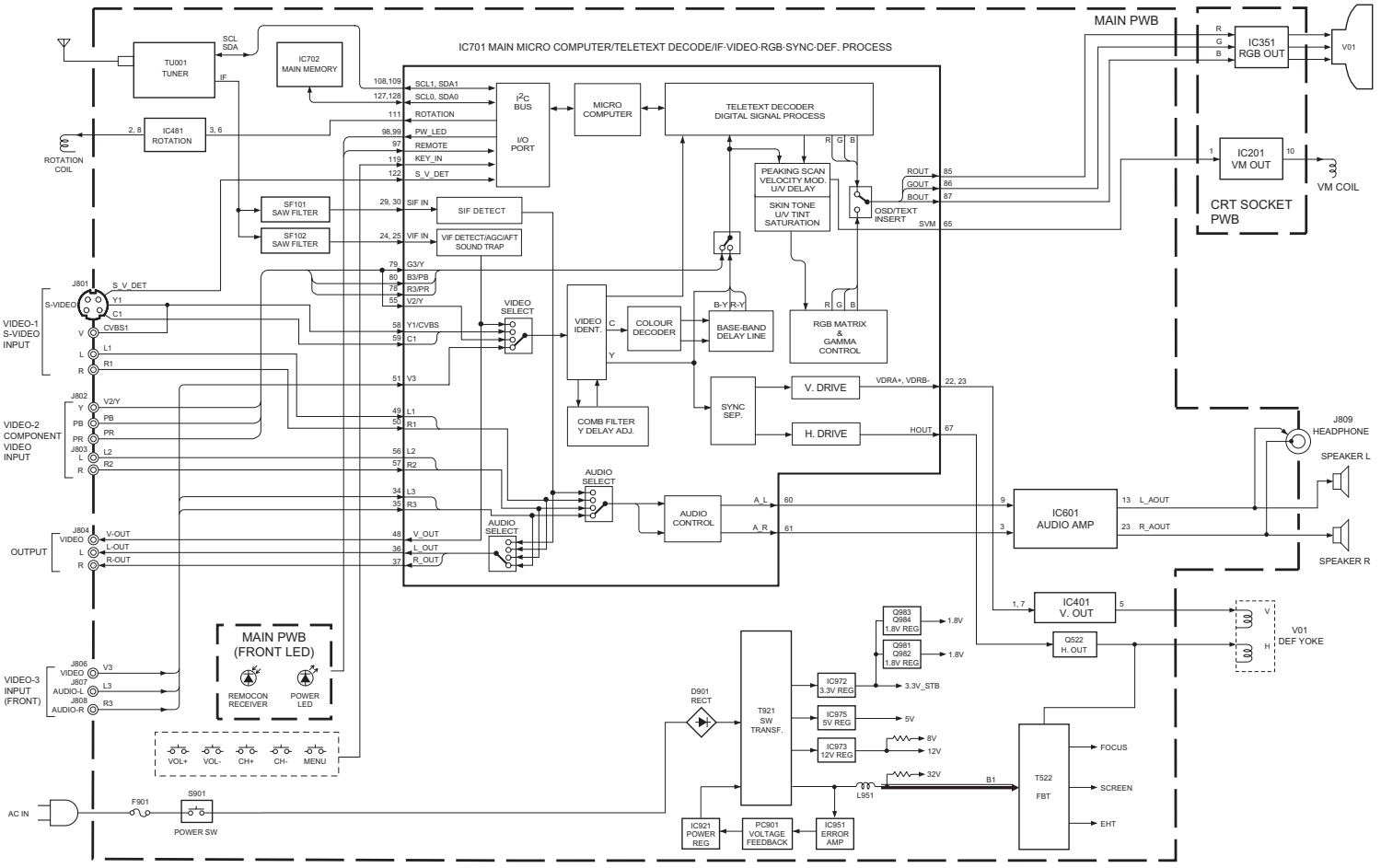
IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

CHIP IC

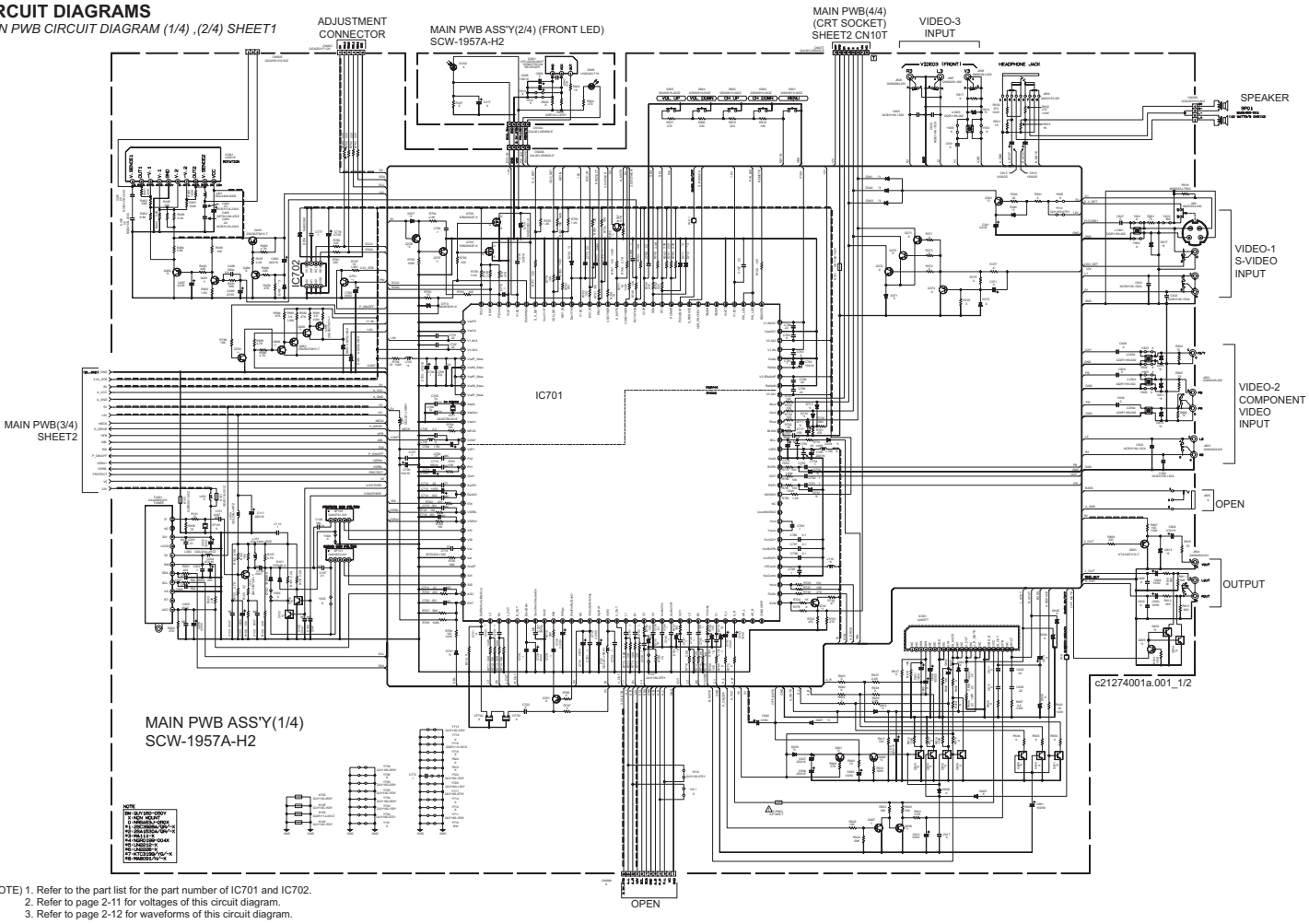
TOP VIEW		
		

BLOCK DIAGRAM



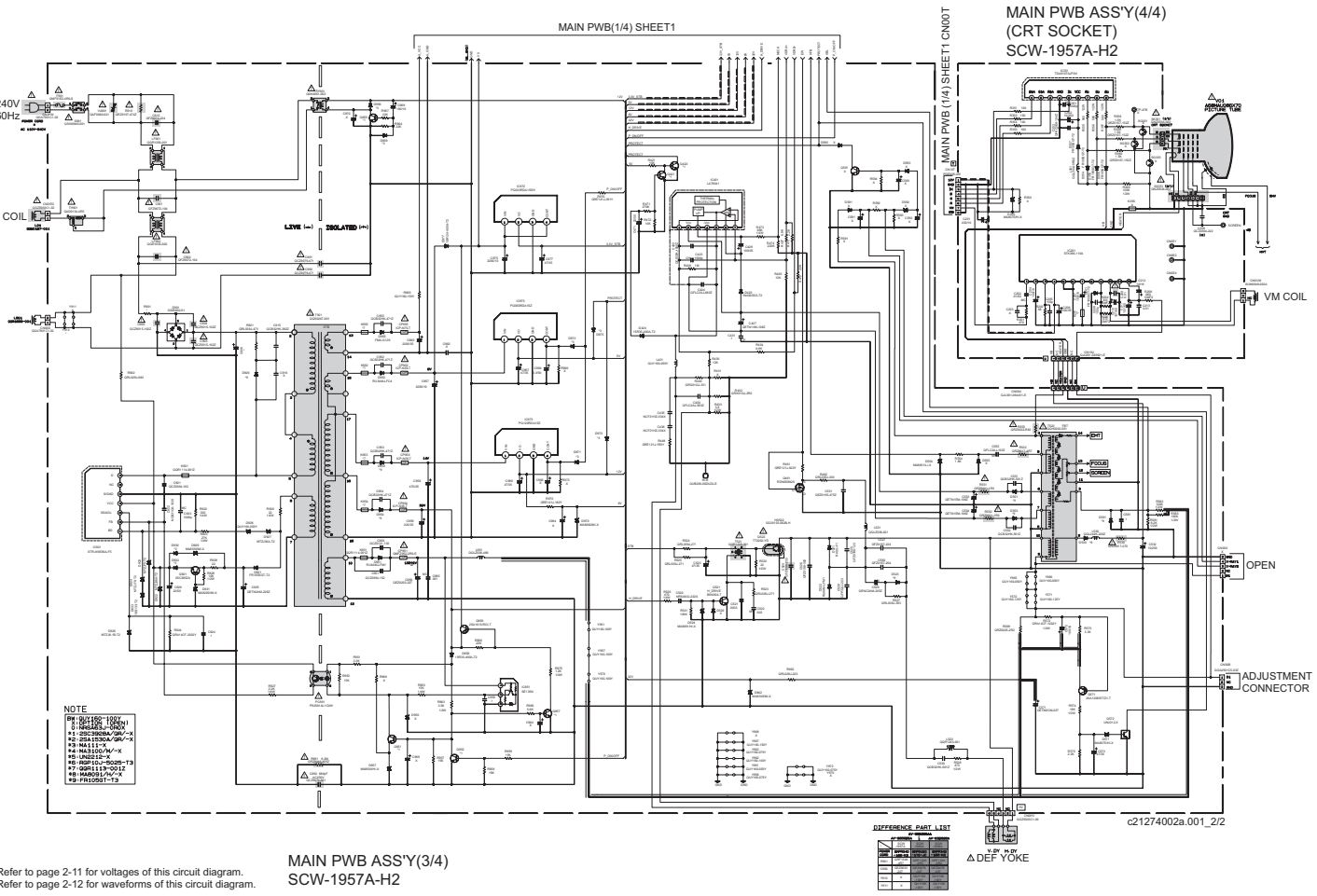
CIRCUIT DIAGRAMS

MAIN PWB CIRCUIT DIAGRAM (1/4) ,(2/4) SHEET1



NOTE) 1. Refer to the part list for the part number of IC701 and IC702.
2. Refer to page 2-11 for voltages of this circuit diagram.
3. Refer to page 2-12 for waveforms of this circuit diagram.

MAIN PWB CIRCUIT DIAGRAM (3/4),(4/4) SHEET2

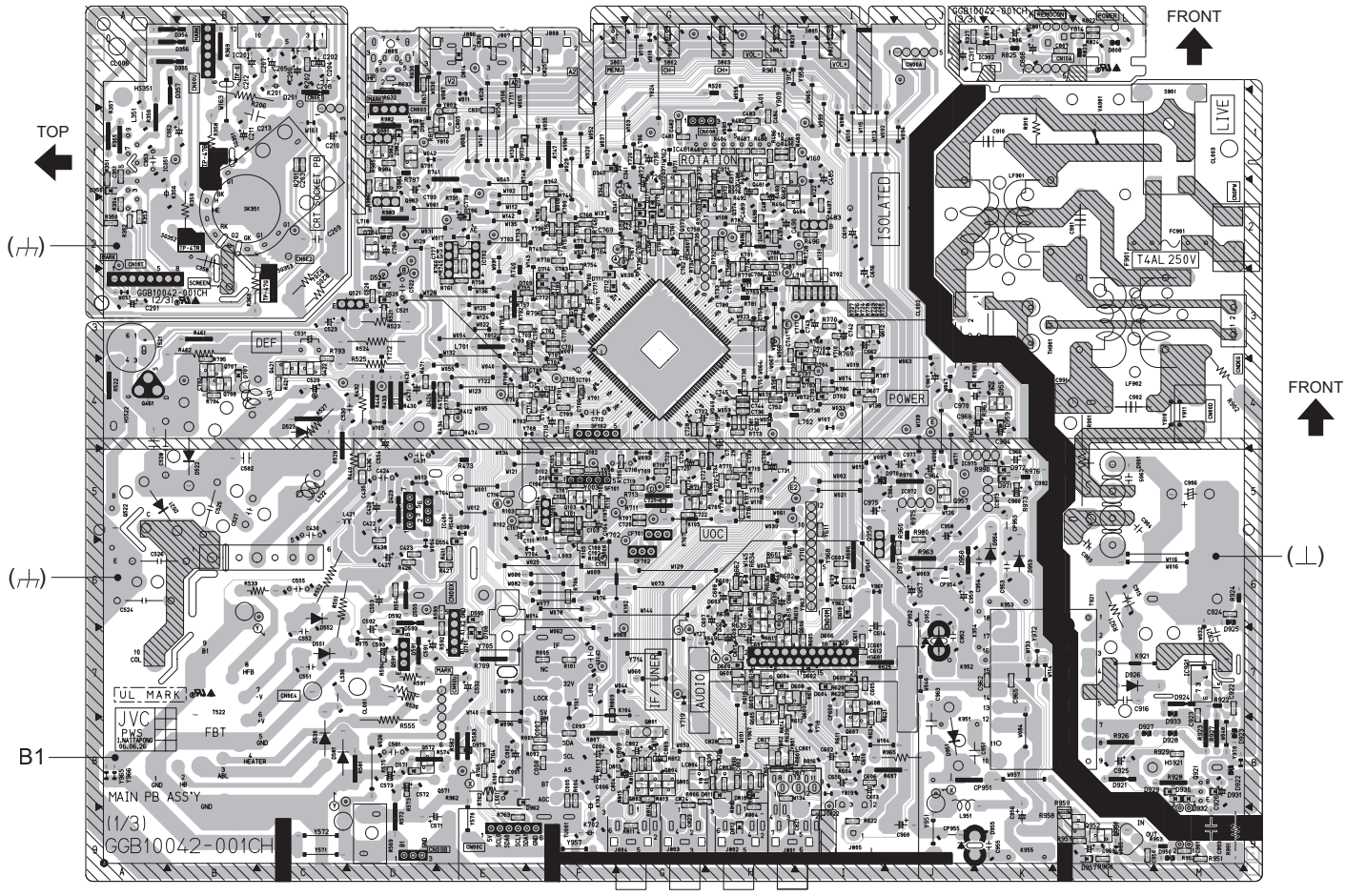


NOTE) 1. Refer to page 2-11 for voltages of this circuit diagram.
2. Refer to page 2-12 for waveforms of this circuit diagram.

MAIN PWB ASS'Y(3/4)
SCW-1957A-H2

PATTERN DIAGRAM

MAIN PWB PATTERN



VOLTAGE CHARTS

<MAIN PWB>

MODE PIN NO.	DC (V)
IC401	
1	0.3
2	13.9
3	-10.8
4	-13.3
5	0
6	14.4
7	0.5
IC601	
1	0
2	NC
3	0
4	NC
5	25.9
6	NC
7	0
8	NC
9	0
10	NC
11	0.5
12	NC
13	12.9
14	NC
15	0.7
16	NC
17	0
18	NC
19	27.2
20	NC
21	16.7
22	NC
23	12.8
IC701	
1	0
2	0
3	1.9
4	3.2
5	3.1
6	0
7	3.0
8	0
9	3.0
10	1.4
11	1.4
12	0.3
13	0.1
14	2.8
15	4.8
16	1.9
17	2.2
18	0
19	2.3
20	2.2
21	3.5
22	1.2
23	1.3
24	1.9
25	1.9
26	2.3
27	1.9
28	0
29	1.9
30	1.9
31	4.3
32	1.8
33	2.1
34	2.2
35	2.2
36	3.6
37	3.5
38	2.4
39	2.5
40	0
41	2.9
42	1.6
43	2.6
44	2.8
45	8.2
46	2.2
47	4.8
48	1.4
49	2.2
50	2.1
51	1.4
52	1.6
53	2.2
54	2.2
55	1.4
56	2.1
57	2.2
58	1.8
59	1.5
60	3.7
61	3.7
62	3.5
63	3.5
64	0.5

MODE PIN NO.	DC (V)
65	2.0
66	0.3
67	1.6
68	0
69	4.9
70	1.3
71	1.2
72	1.2
73	2.0
74	1.7
75	0.3
76	0
77	3.2
78	1.2
79	1.1
80	1.2
81	0
82	4.9
83	2.4
84	3.7
85	2.0
86	2.1
87	2.0
88	3.1
89	0
90	3.1
91	1.6
92	0.2
93	1.7
94	3.2
95	0
96	1.8
97	3.0
98	0
99	0
100	1.9
101	0
102	1.5
103	0
104	0
105	3.1
106	3.2
107	0
108	2.0
109	1.9
110	3.2
111	1.7
112	0
113	0
114	3.1
115	3.1
116	2.6
117	1.9
118	1.9
119	3.1
120	3.0
121	0
122	3.1
123	0
124	1.9
125	0
126	3.2
127	3.1
128	3.1
IC702	
1	0
2	0
3	0
4	0
5	3.2
6	3.2
7	0
8	3.2
IC921	
1	125.4
2	NC
3	0
4	19.7
5	4.0
6	1.7
7	0.3
IC951	
1	135.1
2	21.9
3	0
IC972	
1	6.7
2	3.1
3	0
4	6.4
IC973	
1	16.4
2	11.8
3	0
4	3.1

MODE PIN NO.	DC (V)
IC975	
1	7.5
2	4.9
3	0
4	3.2
Q101	
E	2.2
C	11.8
B	2.9
Q102	
E	0
C	7.5
B	0
Q103	
E	0
C	0
B	3.0
Q341	
E	4.8
C	-0.2
B	4.9
Q421	
E	0
C	0
B	0.5
Q422	
E	0
C	3.1
B	0
Q461	
S	17.6
D	0
G	3.6
Q521	
E	0
C	25.8
B	1.5
Q522	
E	0
C	130.0
B	0
Q571	
E	135.0
C	0
B	134.7
Q572	
E	0
C	3.1
B	0
Q601	
E	8.7
C	0.3
B	8.9
Q602	
E	0.2
C	-0.4
B	0
Q603	
E	0
C	0
B	-0.6
Q605	
E	0
C	0
B	-0.7
Q607	
E	0
C	0
B	0.6
Q608	
E	0
C	22.7
B	0
Q609	
E	0
C	0
B	2.4
Q611	
E	0
C	0
B	2.4
Q612	
E	0
C	4.9
B	0
Q702	
E	1.3
C	4.7
B	2.0
Q704	
E	0
C	2.5
B	0
Q705	
S	0
D	0
G	1.9

MODE PIN NO.	DC (V)
Q706	
S	0
D	0
G	1.9
Q707	
E	0
C	3.2
B	0
Q708	
E	4.7
C	0
B	4.9
Q791	
E	0
C	3.9
B	0
Q801	
E	2.1
C	0
B	1.4
Q803	
E	0
C	0
B	-0.5
Q804	
E	0
C	0
B	-0.5
Q805	
E	0.2
C	-0.4
B	0
Q951	
E	0.7
C	21.9
B	0
Q952	
E	0
C	0
B	0.7
Q957	
E	0
C	29.1
B	0
Q958	
E	29.2
C	6.7
B	29.1
Q981	
E	2.7
C	1.9
B	1.9
Q982	
E	1.9
C	2.0
B	2.5
Q983	
E	2.7
C	2.0
B	2.0
Q984	
E	1.9
C	2.0
B	2.5
TU001	
1	4.3
2	3.8
3	0
4	2.1
5	2.0
6	4.9
7	4.9
8	0
9	35.0
11	0

<MAIN PWB (FRONT LED)>

MODE PIN NO.	DC (V)
IC801	
1	2.9
2	3.2
3	0

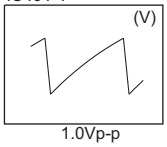
<MAIN PWB (CRT SOCKET)>

MODE PIN NO.	DC (V)
IC351	
1	2.0
2	2.1
3	2.0
4	0.1
5	5.1
6	196.3
7	123.9
8	118.2
9	125.7

WAVEFORMS

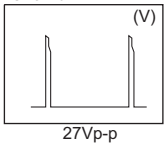
-MAIN PWB-

IC401-1 (V)



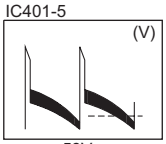
1.0Vp-p

IC401-3 (V)



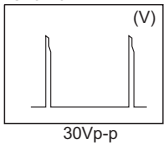
27Vp-p

IC401-5 (V)



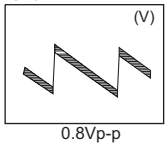
53Vp-p

IC401-6 (V)



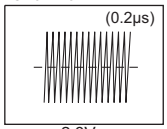
30Vp-p

IC401-7 (V)



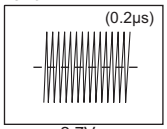
0.8Vp-p

IC701-10 (0.2µs)



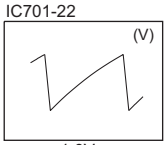
2.3Vp-p

IC701-11 (0.2µs)



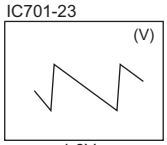
2.7Vp-p

IC701-22 (V)



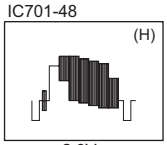
1.0Vp-p

IC701-23 (V)



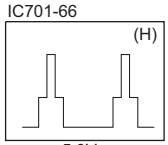
1.3Vp-p

IC701-48 (H)



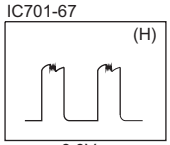
2.0Vp-p

IC701-66 (H)



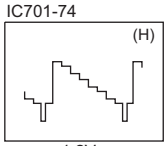
5.0Vp-p

IC701-67 (H)



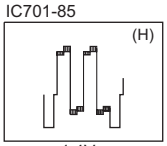
3.0Vp-p

IC701-74 (H)



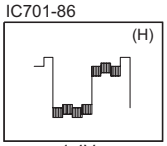
1.2Vp-p

IC701-85 (H)



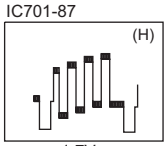
1.4Vp-p

IC701-86 (H)



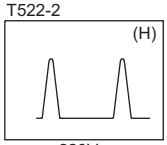
1.4Vp-p

IC701-87 (H)



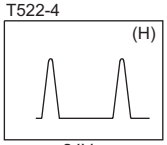
1.7Vp-p

T522-2 (H)



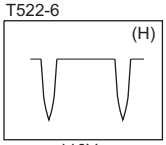
220Vp-p

T522-4 (H)



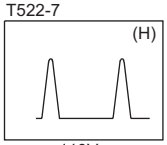
24Vp-p

T522-6 (H)



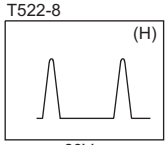
110Vp-p

T522-7 (H)



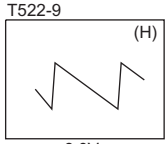
110Vp-p

T522-8 (H)



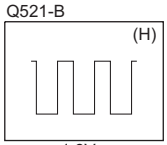
60Vp-p

T522-9 (H)



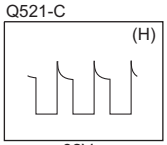
6.0Vp-p

Q521-B (H)



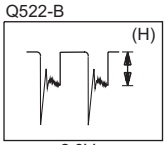
1.3Vp-p

Q521-C (H)



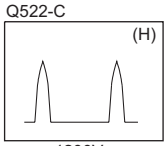
32Vp-p

Q522-B (H)



2.0Vp-p

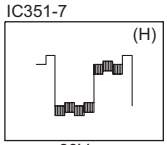
Q522-C (H)



1200Vp-p

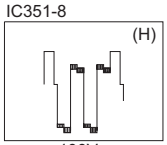
-CRT SOCKET PWB-

IC351-7 (H)



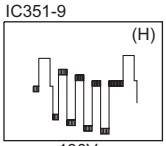
80Vp-p

IC351-8 (H)



100Vp-p

IC351-9 (H)



130Vp-p

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